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PERMACULTURE IN HUNGARY FROM A REGIONAL SCIENCE PERSPECTIVE: PRACTITIONERS' VIEWS AND CHALLENGES

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ABSTRACT - In recent years, environmental anomalies caused by climate change and the drastic increase in production costs have started to raise concerns about conventional agriculture. As a result, more farmers are turning to nature-based agriculture. In large-scale agriculture, we can see more soil regeneration farming, while on smaller plots, other agroecological subsystems such as agroforestry and permaculture farming are also gaining popularity. This paper focuses on permaculture, presenting what this term means for Hungarian farmers and what practical challenges they face in sustainable farming. It highlights that permaculture should not only be analysed as an agricultural innovation but also as a spatial and social phenomenon, since its principles reshape land-use patterns, community relations, and consumption practices, offering broader insights into sustainable development. The interpretation of the concept of permaculture and the obstacles and difficulties of this form of farming is based on the results of in-depth interviews and an online questionnaire survey. This study concludes that while permaculture in Hungary holds strong potential for ecological and social sustainability, its wider success depends on overcoming social scepticism, strengthening supportive networks, and adapting institutional frameworks. Addressing these challenges is essential for scaling permaculture as a transformative model of sustainable agriculture and community resilience.

Keywords: permaculture, regional science, interpretation, farmers, Hungary

INTRODUCTION

From the 1950s to the 1970s, various nature conservation movements began to emerge globally. At the same time, the increasing use of synthetic chemicals in agriculture gave rise to counter-movements advocating for organic farming. These initiatives emphasised the preservation of natural ecological processes and the pursuit of sustainability. It was during this period that the first ecological certification systems were established, and associations dedicated to organic agricultural practices began to form (Lampkin, 1994; Reganold & Wachter, 2016). Among these developments, permaculture emerged in the late 1970s as a significant and influential movement. Its primary aim is to create self-sustaining agricultural systems that mimic natural ecosystems (Mollison, 1988). Importantly, permaculture does not solely focus on agricultural productivity; it also emphasises support for local biodiversity, sustainable water management, soil regeneration, and community-based farming approaches (Mollison & Holmgren, 1981; Hemenway, 2009). In this way, it addresses both the ecological and social dimensions of sustainability (Mollison, 1988; Holmgren, 2002).

According to international academic literature, permaculture represents more than just a farming method; it embodies a nature-centred approach grounded in ethical principles of Earth care and conservation (Centeri et al., 2021). While the concept has been defined in various ways over time, its origins are most closely associated with Australian forester, educator, hunter, and naturalist Bill Mollison and his student David Holmgren. In the 1970s, they envisioned permaculture as an alternative to industrial agriculture (plantura.garden, 2024). Mollison's influential work, Permaculture: A Designer's Manual (1988), outlined the fundamental principles and methods of permaculture. He defined permaculture as "the conscious design and maintenance of agriculturally productive ecosystems that have the diversity, stability, and resilience of natural ecosystems. It is the harmonious integration

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of the landscape and people providing for their food, energy, shelter, and other material and non-material needs in a sustainable way" (Mollison, 1988). According to Mollison and Holmgren, permaculture is built upon three ethical pillars: Earth care, people care, and fair share. These principles are applied through well-defined ecological concepts, design tools, conscious planning, ongoing monitoring, and adaptive redesign—creating both natural habitats and socially integrated systems (Holmgren, 2002)

From the perspective of innovation studies, permaculture is frequently classified as a form of grassroots innovation (Orozco-Melendez & Paneque-Gálvez, 2022), rather than merely a rural innovation (Kézai & Konczosné, 2021; Szörényiné, 2015), since its methods and principles are also applicable in urban contexts. For example, the city of Budapest in Hungary is viewed as a pioneer of urban permaculture, featuring community-based initiatives such as the Zugló Climate Garden, Auróra Climate Garden, and Rozmaringos Garden (Hungarian Permaculture Association, 2024). Several scholars describe permaculture as one of the bottom-up landscape management approaches aimed at strengthening the relationship between humans and the natural environment (Oliveira & Penha-Lopes, 2020; Ferguson & Lovell, 2014, 2015; Maye, 2018). Whether established as a small, self-sufficient home garden or a larger, market-oriented farm—both of which exist in Hungary—permaculture is a dynamic process of experimentation aimed at achieving long-term ecological balance. In practice, permaculture replaces conventional methods with ecologically synergistic alternatives. Instead of uniform planting beds, diverse companion planting arrangements are created to support mutual growth. Soil health is maintained through mulching rather than digging or hoeing, synthetic fertilisers are replaced by compost or organic manure, and chemical pesticides are substituted with natural plant-based alternatives, such as medicinal herbs. Because permaculture also aims to enhance local biodiversity, water features like small dug ponds are often incorporated to attract frogs, dragonflies, and beneficial insects. Organic matter—including kitchen scraps, fallen leaves, and grass clippings—is recycled to produce nutrient-rich compost (Krausz, 2020). Rainwater and greywater harvesting and their reuse are also integral components of both permaculture farms and households based on permaculture principles.

As far as the brief history of this farming approach in Central and Eastern Europe is concerned, permaculture has evolved under diverse socio-economic conditions. In the Czech Republic, the development of community gardens has been closely linked to permaculture initiatives since the early 2000s, while Slovakia has seen an increase in educational workshops and local NGO involvement (Kopnina & Blewitt, 2018). Romania, by contrast, shows a stronger connection to subsistence farming traditions, where smallholders integrate permaculture principles into household-level self-sufficiency practices (Zahiu et al., 2019). An indicator-based analysis of organic farming in Romania provides insights into the spatial distribution and adoption of sustainable agricultural practices, which can serve as a useful benchmark for understanding the local context of permaculture (Fărcaș, 2021). These regional trajectories highlight both commonalities - such as the reliance on grassroots networks - and differences, particularly regarding institutional recognition and integration into rural development strategies.

In Hungary, the first trials of permaculture date back to the 1990s. At that time, the first Hungarian ecovillage, Gyűrűfű, was founded by young ecologists inspired by permaculture principles (Domingos, 2018). In 1994, Gyűrűfű hosted one of the country's first permaculture design courses (Gyurufu.net, 2024). A grassroots movement was launched in 2006 by enthusiastic practitioners, and a decade later the Hungarian Permaculture Association (MAPER) was established to promote permaculture more widely, organize training courses, and develop international collaborations (Centeri et al., 2021; Hungarian Permaculture Association, 2024). Today, the association's work teams cover a wide spectrum of activities ranging from design and education to research and community building. Over the past decade, the professional community in Hungary has grown considerably. Every year, more courses, clubs, and publications become available, and the number of certified permaculture designers continues to rise (Szabó, 2024). Design courses (PDCs) are offered by various organizations and practitioners, while some universities (such as the Hungarian University of Agriculture and Life Sciences) have begun integrating permaculture principles into their curricula or offering short-term courses (Gál et al., 2022). Despite these developments, however, activities remain fragmented and not yet fully integrated into mainstream agricultural research and policy (Balázs et al., 2020).

As already mentioned above, permaculture should not be understood solely as an agricultural practice but as a spatial and social innovation that reshapes human–environment interactions across multiple scales. From a *spatial sciences perspective*, permaculture contributes to the reconfiguration of landscapes by emphasizing the use of locally available resources and site-specific design principles. This approach reduces ecological footprints while enhancing the resilience of both urban and rural spaces (Ferguson & Lovell, 2014). Unlike conventional agriculture, which often requires extensive land consolidation, permaculture principles can be implemented on plots of any size—from balcony gardens to large farms—making them adaptable to diverse spatial contexts (Mollison, 1988; Smith et al., 2021). In urban areas, permaculture gardens and green infrastructures support ecosystem services, strengthen food security, and provide multifunctional public spaces (Barthel et al., 2010). In rural settings, permaculture fosters integrated land-use strategies that preserve biodiversity and regenerate degraded landscapes (Holmgren, 2002). Thus, permaculture serves as a bridge between ecological design and spatial planning, contributing to sustainable territorial development.

From a *social sciences perspective*, permaculture is equally relevant because it reorients consumption practices and lifestyle choices. Instead of relying on industrially processed products, it encourages greater self-reliance, local production, and community-based exchange systems, leading to improved quality of life and reduced dependency on globalized supply chains (Veteto & Lockyer, 2008; Böjte & Molnár, 2020). Permaculture communities not only exchange seeds, skills, and resources but also nurture forms of social capital and solidarity that are critical in times of socio-economic and ecological crisis (Macnamara, 2012). Its minimalist, sufficiency-oriented ethos aligns with degrowth discourses in social science, as it emphasizes living well with less and fostering resilience through collective action (Trainer, 2019). Moreover, by creating spaces such as community gardens, permaculture actively reshapes the social fabric of neighbourhoods, offering opportunities for participatory governance, education, and intergenerational knowledge sharing (Barthel et al., 2010; Smith et al., 2021).

In summary, beyond its ecological and agricultural functions, permaculture also has important implications for spatial sciences and social sciences. From a spatial perspective, it can contribute to rethinking land-use patterns, the urban–rural nexus, and planning processes. As the European Green Deal and the Common Agricultural Policy 2023–27 both highlight, the transition towards sustainable food systems requires not only changes in farming techniques but also spatial innovations in settlement design, peri-urban agriculture, and integrated territorial development (European Commission, 2024a, 2024b). In this regard, permaculture can provide a practical framework for implementing small-scale, decentralized solutions that complement regional sustainability strategies. From a social sciences perspective, permaculture encourages lifestyle changes that go beyond farming practices. It fosters a culture of sufficiency, self-reliance, and community engagement, resonating with degrowth and post-consumerist discourses (Trainer, 2019; Kallis et al., 2020).

The primary aim of this study is to investigate how Hungarian farmers interpret the concept of permaculture and what practical challenges they face in applying this nature-based form of farming. Beyond the agricultural dimension, the study also seeks to highlight the relevance of permaculture from the perspective of spatial sciences and social sciences, thereby situating it within broader discussions of sustainability, community resilience, and regional development. In order to achieve this aim, the research is guided by the following questions:

1.) *How do Hungarian farmers interpret the concept of permaculture?* (What meanings, values, and principles do practitioners associate with permaculture, and how do these interpretations align with or diverge from international academic definitions?)

2.) *What are the main practical challenges and obstacles faced by permaculture farmers in Hungary?* (Which difficulties emerge in social, economic, institutional, environmental, and personal domains?)

By addressing these questions, the study aims to provide empirical insights into how permaculture is locally understood and practised in Hungary. The findings may contribute to a more nuanced understanding of the opportunities and constraints faced by practitioners, while also informing policy discussions on sustainable agriculture and rural development.

METHODS

The theoretical foundation of this study is grounded in an analysis of both international and domestic literature on nature-based farming, with a specific focus on permaculture. A key aspect of this analysis was to examine permaculture from the viewpoint of regional science rather than traditional agriculture, emphasising the spatial and community-related dimensions of the system.

In addition to reviewing the literature, empirical results were obtained from in-depth interviews conducted in the fall of 2023 on permaculture farming. One of the central questions addressed in these interviews was how Hungarian farmers who apply this approach interpret the concept of permaculture. The interviews were semi-structured, providing participants with the opportunity to describe their personal experiences in depth while maintaining a degree of comparability across responses. This method ensured that both unique narratives and common patterns could be identified. The conversations were recorded, transcribed, and thematically coded to reveal recurring ideas, interpretations, and challenges. As for the geographical location and professional qualification of the interviewees, three of the four permaculture farmers in Transdanubia (Sokorópátka, Törökbálint, Seregélyes) had encountered this form of farming more than ten years ago and had also obtained permaculture designer certification (PDC), while one farmer (in the village of Kunsziget) had been familiar with the method for three years and planned to complete this training in the future.

Another source of empirical results was an online questionnaire survey launched on March 26, 2025, and closed on May 31, 2025, targeting Hungarian farmers interested in permaculture or already practising it. The nationwide online questionnaire complemented the qualitative data by collecting quantitative insights from a larger sample. Questions were designed to measure both objective factors, such as farm size, location, and production type, and subjective factors, including motivations, perceived challenges, and sources of knowledge. To ensure reliability, most questions were closed-ended with predefined categories, while selected open-ended questions allowed for more nuanced insights. The combination of qualitative and quantitative methods thus enabled a comprehensive analysis of the spread and adoption of permaculture across Hungary.

The survey was distributed through the internal mailing list of the Hungarian Permaculture Association, targeting its members, and was also shared in various permaculture-themed Facebook groups in Hungary to reach a broader audience engaged in the movement. In total, 106 individuals responded to the questionnaire. Of these respondents, 71,4% identified as female, while 28,6% identified as male. Data from the online survey were exported, cleaned, and systematically analysed using descriptive statistical methods, while cross-tabulations were employed to identify potential associations between farm characteristics and perceptions of permaculture.

This mixed-methods approach allowed for triangulation: interview data provided in-depth, contextualised insights into individual practices and experiences, while the questionnaire data offered a broader overview of trends, socio-demographic characteristics, and challenges faced by the Hungarian permaculture community. Together, these methods formed the empirical backbone of the study.

RESULTS AND DISCUSSION

The self-prepared online questionnaire survey 2025 featured 20 questions covering respondents' personal experiences, perceptions, and challenges in practising and promoting permaculture in Hungary. With respect to experience, over half of the respondents (53%) had been practising permaculture for 1–5 years, while 13% were beginners with less than one year of experience. A smaller group (11%) had 6–10 years of practice, and about 11% had not yet implemented permaculture in practice but were considering it. Only 6% reported more than 15 years of experience. Motivations were strongly connected to healthier lifestyles: the desire for self-sufficiency and chemical-free food was by far the most common driver, often complemented by ecological awareness, curiosity, and experimentation. Regarding training, about half (48%) had never attended formal courses, while 26% had completed a Permaculture Design Certificate (PDC). Others reported attending workshops or informal training. The most important sources of information included specialist books, online platforms, social media, and personal networks (family, friends, other farmers), with many also highlighting the role of professional events and the Hungarian Permaculture Association.

In addition to the descriptive findings, the profile of the respondents highlights that permaculture in Hungary currently attracts a diverse but still relatively niche group of practitioners. While a majority of respondents were women, reflecting broader international tendencies of higher female engagement in ecological and community-oriented farming, the age distribution suggested that permaculture appeals both to younger individuals seeking alternatives to industrialised lifestyles and to middle-aged or retired people looking for sustainable land-use practices. The educational background of participants also varied, with a noticeable presence of highly educated respondents, which points to the intellectual and conceptual appeal of permaculture beyond purely agricultural circles.

Beyond motivations linked to healthier lifestyles and chemical-free production, several respondents also associated permaculture with deeper ethical or philosophical commitments, such as living in harmony with nature, reducing ecological footprints, or experimenting with post-growth lifestyles. These responses indicate that for many participants, permaculture functions not only as a farming technique but also as a cultural and identity-forming practice. The emphasis on observation, experimentation, and adaptation to local circumstances was frequently mentioned, highlighting the importance of tacit, experience-based knowledge alongside formal training.

Interpretation of permaculture based on in-depth interviews with Hungarian permaculture farmers and among people answering the online survey

The interviews with permaculture farmers explored the differences between international literature and the Hungarian perspective on permaculture. Respondents have reinterpreted Mollison's approach, forming their own visions. A farmer in Western Hungary defines permaculture as a "chemical-free, sustainable ecosystem," while other views it as a "green initiative" that fosters harmony between humanity and nature. A farmer in Törökbálint highlights the role of local communities, stating that permaculture is a method aimed at creating well-functioning communities in harmony with nature. The farmers seek innovative solutions for healthier food and self-sufficiency, expressing doubts about industrial agriculture. One sells his produce locally, while others grow food primarily for their families. When asked about their primary sources of information, the farmers mentioned excellent books, online platforms, support from the Hungarian Permaculture Association, and personal contacts. They noted that there is still considerable misunderstanding about permaculture within their communities. While some interest exists, breakthroughs remain limited due to a lack of awareness and community engagement. To promote permaculture, farmers offer garden visits, attracting a diverse range of visitors, from young children to seniors seeking new farming techniques. Overall, although misunderstandings persist, a segment of the population is open to permaculture, but widespread adoption in Hungary will take time (Uszkai, 2025a).

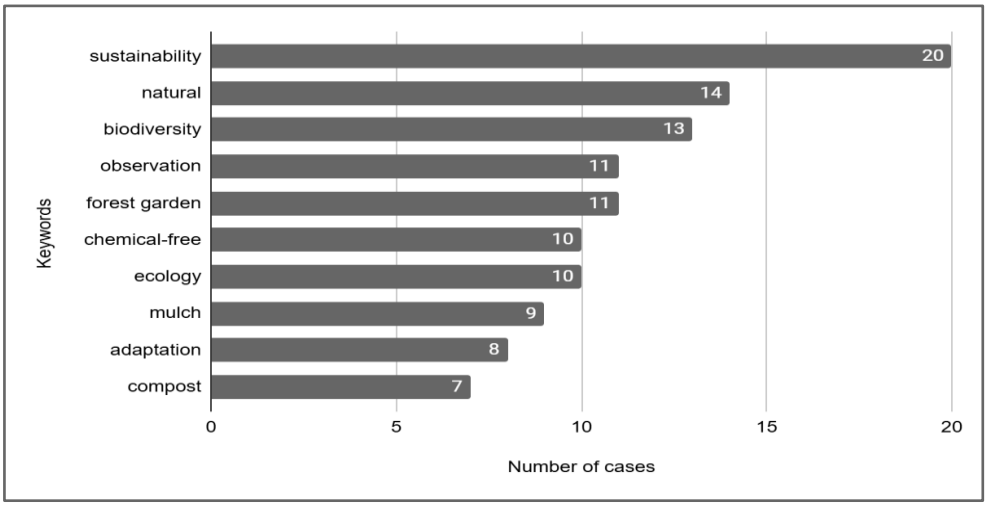

Figure 1. *Top 10 keywords mentioned for the term permaculture in the questionnaire survey by number of frequencies (in number) (N=106)*
Source: Survey, 2025

The self-prepared online questionnaire survey ("Characteristics of the spread of permaculture-based farming in Hungary, 2025b") also provides empirical results for the interpretation of the concept of permaculture in Hungary. One of the questions asked respondents what first came to mind when they heard the term permaculture. The results show that the 10 most frequently mentioned keywords are sustainability, natural, biodiversity, observation, forest garden, chemical-free, ecology, mulch, adaptation, and compost. The frequency of occurrences is summarised in Figure 1.

Challenges Faced by Permaculture Farmers in Hungary based on the Survey 2025

The responses to the questionnaire revealed a complex and multifaceted set of challenges that permaculture practitioners face in Hungary today. These obstacles span social, economic, institutional, environmental, and personal domains, painting a nuanced picture of the difficulties encountered in the everyday practice and development of permaculture-based farming systems.

Among the most frequently mentioned difficulties were social and community-related barriers (33 mentions). Many respondents reported experiencing negative attitudes from their immediate environment, including dismissive or even hostile reactions from neighbours who continue conventional chemical-intensive farming and view permaculture with skepticism or ridicule. A total of 18 responses specifically referred to these social tensions. Additionally, several participants expressed feelings of being misunderstood or mistrusted (7 mentions), emphasising the emotional burden of isolation and the lack of a like-minded local community (8 mentions). These experiences highlight the importance of social acceptance and support structures in enabling the growth of permaculture practices.

A significant number of respondents identified personal and resource-related limitations (27 mentions). These included time and physical capacity constraints (7 mentions), difficulties in obtaining essential materials such as seeds, compost, or seedlings due to financial limitations (6 mentions), and a recurring theme of impatience or frustration with the slow pace of natural processes (7 mentions). Additionally, several respondents (7 mentions) pointed to a lack of knowledge or experience—particularly in the early stages of implementation—as a key barrier.

Environmental and climatic challenges (24 mentions) were also frequently cited. In total, 24 mentions addressed natural factors that negatively affect permaculture farming. Climate change, particularly in the form of drought and extreme weather conditions, was the most prominent concern (11 mentions). Respondents described increasing problems with pests and invasive species (8 mentions) as well as damage caused by wildlife and the indirect impact of neighbouring farms using chemical inputs (5 mentions). These responses highlight the vulnerability of small, ecologically sensitive systems in the face of broader environmental degradation.

Institutional and regulatory obstacles (21 mentions) emerged as another significant topic. Respondents expressed frustration over the lack of dedicated state support for permaculture initiatives (6 mentions), with many describing the regulatory environment as overly complex and burdensome. Bureaucracy and excessive regulation were cited 8 times, and another 7 mentions referred to problematic local or national policies—such as mandatory mowing regulations or restrictions on traditional natural building materials like adobe. These findings suggest a mismatch between existing agricultural or zoning policies and the needs of ecologically-oriented, small-scale land users.

Economic and market-related difficulties (18 mentions) were also prevalent among the responses. Permaculture farmers often find themselves at a disadvantage in a market environment dominated by industrial-scale, low-cost agricultural products. Several respondents noted that consumers tend to be highly price-sensitive, which limits the marketability of higher-priced, small-scale permaculture goods (7 mentions). Others pointed to the influx of inexpensive imported products and the structural advantages enjoyed by large-scale conventional producers (5 mentions). There were also frequent mentions of challenges in sales and communication, particularly in justifying the higher prices necessary for sustainable production (6 mentions). This underscores the need for consumer education and alternative market channels (Figure 2).

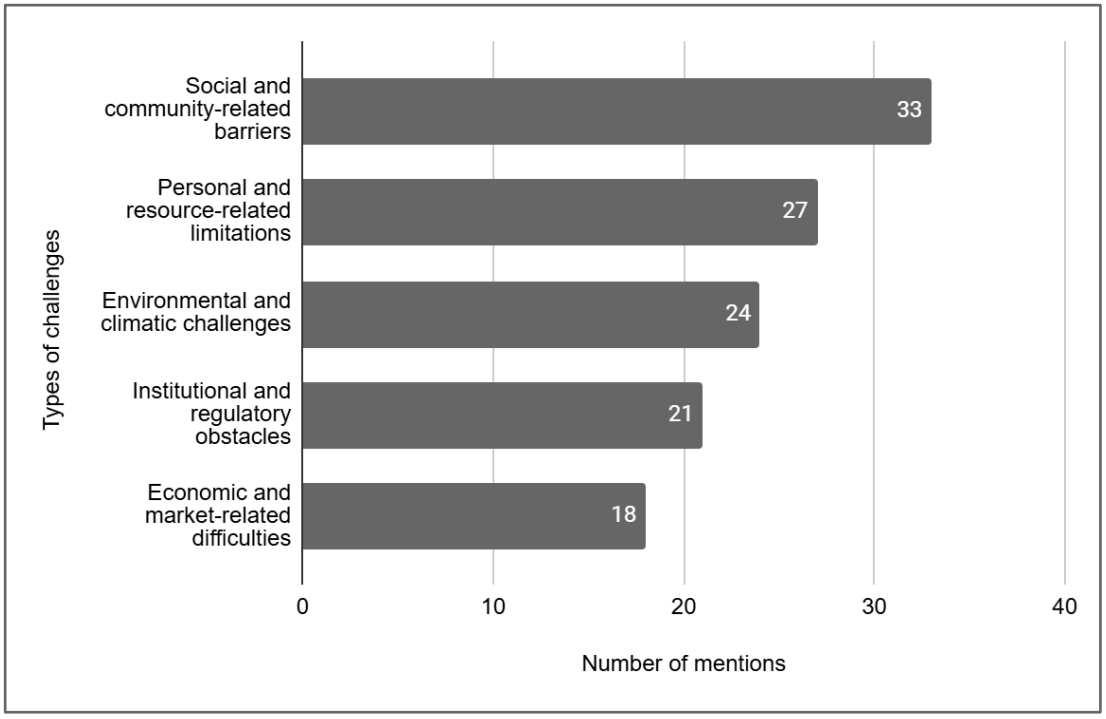

Figure 2. *What difficulties and obstacles does a permaculture farmer have to face today? - Summary of questionnaire responses (N=106)*
Source: Survey, 2025

The prioritisation of challenges highlights that Hungarian permaculture, in its current stage, is particularly vulnerable to external pressures, whether climatic, economic, or institutional. Yet the resilience strategies developed by practitioners - ranging from community building and peer-to-peer learning to experimenting with alternative markets such as community-supported agriculture - demonstrate adaptive capacity. This mirrors international findings that grassroots ecological movements often compensate for structural weaknesses with innovation and social capital. The Hungarian case, therefore, illustrates both the limitations of individual-scale action and the transformative potential of collective initiatives if adequately supported. These findings also illustrate that the obstacles facing permaculture farmers in Hungary are not merely technical or environmental, but are deeply embedded in broader socio-economic and institutional systems. Addressing these challenges requires not only individual resilience and innovation but also structural changes in policy, education, and community engagement.

In sum, the results suggest that while Hungarian permaculture practitioners are motivated by strong ecological and lifestyle commitments, their everyday practices are constrained by a combination of social, institutional, and environmental obstacles. These challenges, however, also stimulate creative adaptation strategies, particularly through community initiatives and alternative market structures. The findings highlight that the future trajectory of permaculture in Hungary will largely depend on whether supportive networks, recognition, and policy frameworks can be established to complement individual efforts and ensure long-term resilience.

The comparison between the interviews and the questionnaire results also underscores a gap between individual enthusiasm and broader social recognition. Farmers interviewed reported that while interest exists—manifested in garden visits, workshops, or online discussions—permaculture remains widely misunderstood. Many practitioners described a sense of being on the "margins" of mainstream agriculture, which resonates with the survey findings on social scepticism and community-related barriers. At the same time, both data sources suggest that curiosity and openness among wider society

are slowly increasing, which could serve as an entry point for broader dissemination if supported by educational and policy frameworks.

CONCLUSIONS

This study has highlighted how permaculture is understood and practised in Hungary, drawing upon both qualitative interviews with certified practitioners and a nationwide questionnaire survey. By combining these methods, it was possible to capture both the depth of individual experiences and the breadth of perspectives within the Hungarian permaculture movement. The results show that while permaculture is often interpreted beyond its agricultural dimension, encompassing ethical, community, and lifestyle aspects, its spread is still limited by social, institutional, and economic challenges.

From a regional science perspective, permaculture emerges as more than a farming technique: it represents an alternative land-use system that integrates ecological design, local knowledge, and community values. The findings also indicate that practitioners often see themselves as part of a broader movement toward sustainability, which connects rural and urban areas through networks of knowledge exchange and community support.

At the same time, barriers such as scepticism from conventional farmers, lack of institutional recognition, and limited access to resources continue to hinder wider adoption. Addressing these barriers may require not only stronger professional support systems but also policy interventions that recognise the multifunctional role of permaculture in ecological restoration, rural development, and community resilience.

Based on the findings, several recommendations can be made for policymakers and practitioners. First, the institutionalisation of permaculture education through agricultural training programs and universities could enhance recognition and credibility. Second, targeted funding schemes and subsidies for small-scale ecological farming initiatives could provide the necessary financial support for farmers adopting permaculture principles. Third, fostering stronger collaboration between permaculture practitioners, local municipalities, and civil society organisations could strengthen community-based initiatives and reduce the sense of isolation among farmers. Finally, integrating permaculture and other forms of nature-based farming into regional and national sustainability strategies would ensure that its potential contributions to biodiversity conservation, climate adaptation, and rural development are more systematically acknowledged and supported.

Overall, this study demonstrates that permaculture in Hungary is still in a formative stage but holds significant potential as a regionally adapted, socially embedded form of nature-based farming. Future research could further explore its long-term economic viability, its contribution to ecosystem services, and how it can be integrated into regional development strategies.

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