

THESIS

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**EXPLORING THE SOCIAL ASPECTS OF AGROECOLOGY
THROUGH A CASE STUDY OF THE STUDENT VOLUNTEER
PROGRAM IN THE SZIA AGROECOLOGICAL GARDEN AT
MATE, HUNGARY**

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1. Introduction and objectives

This research aims to provide an overview of the social aspects of agroecology by analyzing the social dimension of the “Experience-based volunteer program with an agroecological base” student volunteer program (Volunteer Program) conducted in the SZIA Agroecological Garden (SZIA Garden) at the Szent István Campus of the Hungarian University of Agriculture and Life Sciences (MATE) in Gödöllő, Hungary, between April and June 2025. I have chosen this topic because agroecology is a complex system that offers solutions for various aspects of life, including social, agricultural, environmental, and economic fields, thereby creating sustainable food and farming systems (Caporali, 2007). Studying this topic is crucial for a better understanding of how such agroecological volunteer programs contribute to popularizing their practices in higher education settings. “There are two aspects of every university. The first and most evident is that it deals with culture, knowledge, the use of the intellect. The second, and not so evident, is that it must be concerned with the social reality-precisely because a university is inescapably a social force: it must transform and enlighten the society in which it lives.” (Ellacuría, 1982).

By being the student coordinator for a sum of 15 weeks, during my internship, partly in the upper mentioned agroecological and organic garden, partly maintained by the Diversity Public Utility Foundation, and in the other 300 hours of this period (out of the 600 hours required), at the Directorate for International Relations and Development, I gained experience in managing the following activities; recruiting volunteers, managing the volunteering schedule, planning, leading, and supervising the gardening activities, organizing community events, reviving the social media accounts of the garden on Facebook and Instagram, updating and extending the received coordinator’s guide, and contributing to the recruitment of a new, long-term students’ coordinator. For this reason, I am able to analyze the data obtained firsthand and provide information based on my own experiences.

This thesis aims to answer the following questions:

- What features, in terms of age, nationality, gender, level of studies, study program, gardening experience, and weekly availability for gardening activities in hours, characterize those students who applied for the Volunteer Program?
- What were the inner drives of students who showed interest in joining the Volunteer Program by filling in the application form?

- What did interested students think the possible benefits of the Volunteer Program could be for their academic and/or career goals?
- What strengths and benefits of the program did they identify after the given 10 weeks?

2. Literature review

2.1. Evolution and principles of agroecology

“Agro-ecology” and “agro-ecological research” were new expressions at the beginning of the twentieth century, first used by Basil Bensing in 1930 (Scordia et al., 2025). Based on his work, the essence of it was to focus on how the ecological principles could be applied in agricultural production systems (Bensing, 1930). As a discipline, agroecology emerged through the work of Tischler, in the form of his book, titled “Agrarökologie”, which dealt with the interactions of soils, plants, animals, climate, and the effects of agricultural management on these components, caused by humans (Wezel et al., 2009). From the 1970s, agroecology developed as a form of resistance in Latin America, Mexico, to the Green Revolution (Gliessman, 2013). Its application depends on the local context, challenges, and opportunities (Soil Association, n.d.). Nowadays, agroecology is a transdisciplinary field of science, practice, and social movement, characterized by a holistic approach to ecological, economic, technological, socio-cultural, and political aspects of food systems (FAO, 2025). In the field of science, agroecology is researched for its environmentally friendly farming methods, and social movements to achieve food sovereignty and food safety (Helenius, Wezel, & Francis, 2019). It is approached through action research, a cyclical process with four phases: planning, acting, observing, and reflecting (Tripp, 2005). As a practice, it is grounded on a set of principles and agricultural lands are managed according to its concepts. These include promoting soil health, conserving biodiversity, enhancing nutrient cycling, and many more (Rodics & Ujj, 2022; Dushyant et al., 2024). At the same time, agroecology represents a social movement that expresses cultural values, defends human rights, preserves social networks, promotes recreation, and strives for food sovereignty (Rodics & Ujj, 2022; Bezner Kerr, Liebert, Kansanga, & Kpienbaareh, 2022). According to the Food and Agricultural Organization of the United Nations – FAO (2018) agroecology simultaneously applies social and ecological concepts and principles to the management and design of food and agricultural systems, with an integrated approach. Furthermore, it tries to optimize the interactions between the environment, humans, plants and animals, while considering the social aspects that must be handled in favour of a sustainable and equitable food system. Based on the claim of the European Commission, Knowledge Centre for Global Food and Nutrition Security

(2024), agroecology is a form of agriculture that ensures the use of natural resources in a regenerative way, leads the way towards a circular, resilient and more sustainable food system, contributes to food security, provides resilience to climate change and increases small-scale farmers' income.

Nowadays, the 4 main dimensions of agroecology are agricultural, environmental, economic, and social, all having several different branches. From an agricultural point of view, the maintenance of animal health and crop health, thoughtful nutrient management, and energy use are some of the most important factors, while environmental endeavors include climate mitigation, care for biodiversity and soil health, and keeping waters clean. In the economic field, productivity and resilience are essential for obtaining a regular income. From a social perspective, balanced nutrition, human well-being, social justice, and adaptive capacity must be taken into consideration. (CGIAR, 2022)

2.2. Agroecology and organic farming

Based on a study of Migliorini and Wezel (2017), the most important challenges of the 21st-century agriculture are to feed the growing population on Earth, reduce the amount of wasted food, provide healthy ingredients for our meals, while preserving natural resources and coping with climate change. Furthermore, it has the potential to put an end to social injustice and the erosion of culture, especially the loss of traditional knowledge. To achieve these goals, they differentiate between two radical ways of farming for food. One of them relies on technology and genetically modified crops, the other favours farming systems that rely on ecological principles. According to Béres (2024), organic farming falls within agroecology, and both are considered sustainable and eco-friendly, but are based on different approaches and have distinct goals. Agroecology is comprehensive and has a system approach to the food industry (Harkányi & Ujj, 2023), from production to consumption and waste management, instead of taking the agricultural production aspect only. Organic farming means a set of agricultural practices that are based on EU organic regulations (Nemzeti Élelmiszerlánc-biztonsági Hivatal [Nébih], 2022). For this reason, organic production is controllable, while the other is a mix of science, practice, and social movement. Both aim for environmentally friendly production, but agroecology takes it in a wider economic and political context, for which it sometimes receives criticism due to mingling with political movements. However, it promotes equality and social well-being also, while organic production is not always oriented towards social issues. Most chemical inputs are not allowed in organic farming (European Commission, 2021); only naturally sourced or slightly processed fertilizers from natural origin (for example, pelleted

chicken manure) and plant protection products with low environmental impact are legalized, whereas in agroecology, conventional products are possibly avoided, but their use is not banned. The latter is flexible and focuses on location-specific solutions, aims to achieve food sovereignty, social justice, and rural livelihood, and builds on local knowledge, community engagement, and biodiversity, whilst compliance with standardized organic regulations on the production level and gaining bio-certification is the priority for organic farmers. So, while agroecology is organized from the bottom up in the form of a social movement, organic farming is regulated from upwards through rules and regulations (Research Institute of Organic Agriculture [FiBL], 2024). Organic-certified products are easily marketable due to the certification system, but products of the other system are less formalized. Based on the definition of the General Assembly of the IFOAM – Organics International (2008) organic agriculture sustains healthy soils, people and ecosystems. It counts on ecological processes, cycles and biodiversity adapted to local conditions, but not the usage of inputs with possible disadvantageous effects. It also claims that organic agriculture is a mix of science, innovation, and tradition to help the shared environment and promotes fair relationships and good quality of life for all.

2.3. Transformation towards sustainable and resilient food and agricultural systems in agroecological ways

In 1945, the United Nations was founded for the purpose of taking action on several types of issues. The power of this international organization lies in its Charter, which is an international treaty. Currently, 193 Member States are counted. (United Nations, n.d.)

The Food and Agriculture Organization (FAO) and the High Level Panel of Experts (HLPE) both deal with the transformation of agricultural settings to agroecological systems and are related to the United Nations, the first being a specialized agency leading missions internationally, to defeat hunger, the latter being a UN body that assesses the science about nutrition and world food security (FAO, n.d.).

The agroecological transformation of food and agricultural systems is supported by frameworks of the FAO's 10 Elements of Agroecology (FAO, 2018) and the HLPE's 13 Agroecological Principles (High Level Panel of Experts on Food Security and Nutrition [HLPE], 2019). The 10 Elements of Agroecology, as defined by the FAO, are co-creation and sharing of knowledge, human and social values, diversity, synergies, responsible governance, efficiency, resilience, recycling, culture and food traditions, and circular and solidarity economy (FAO, 2018; Ujj et

al., 2022). The 13 Agroecological Principles, as specified by the HLPE, are input reduction and recycling for the aim of improving resource efficiency, biodiversity, economic diversification, synergy, soil health and animal health to strengthen resilience, co-creation of knowledge, social values and diets, participation, land and natural resource governance, connectivity and fairness for ensuring social equity and responsibility (HLPE, 2019).

Despite originating from different processes, both frameworks approach the transition to agroecology in a similar way. The commonalities include holistic and systems thinking, ecological and production principles, knowledge, innovation and co-creation, social, cultural, governance, and equity dimensions. They align in many aspects, but differences can be found in structure, emphasis, and granularity. While the FAO's 10 Elements were developed through consultation and are ordered in more general categories, the HLPE's 13 Principles are rooted in scientific review and divide ecological and social fields into finer principles. Using the two structures simultaneously can be beneficial, as FAO's elements provide a broader overview of agroecology, while the HLPE's principles are more detailed and have policy direction. (FAO, 2018; HLPE, 2019)

2.4. Community and educational gardens

According to Kortárs Építészeti Központ Alapítvány (KÉKA) (n.d.), community and educational gardens are areas of land where people of different ages and social backgrounds gather and spend time together while practicing vegetable and/or fruit and/or herb production in their free time. These places play a crucial role in shaping the community culture, sharing knowledge, fostering active participation through engagement in a diverse set of activities, environmental protection, and promoting community well-being. Community gardens encompass sections of land, such as plots, school gardens, and teaching or demonstration gardens, where people engage in gardening activities together for the sake of growing vegetables, fruits, and/or herbs for personal consumption (Egli, Oliver, & Tautolo, 2016).

The target group can include a wide range of people depending on the location, type, accessibility, and primary aim of the garden. They can be citizens, people from the neighbourhood, active youth, individuals, civil associations and their sympathizers, groups of kids from kindergarten or primary schools, university students, or senior citizens. (KÉKA, n.d.; Szerényi, 2021)

In terms of social culture, social garden initiatives usually promote a sense of community belonging, the revival of gardening culture in the city, lighting social and existential,

generational, and cultural gaps between the individuals, taking responsibility for the communal growing space, and a place for events, for example, markets and trainings. (KÉKA, n.d.; Hou, 2017)

Several health benefits of community gardening can be identified, which are higher intakes of mainly ecologically and locally produced vegetables and/or fruits and/or herbs, physical education, recreation, physical and mental well-being (Pullin et al., 2014), and even the improvement of microclimatic conditions by reducing heat islands in cities. (KÉKA, n.d.)

Strengthening of social interactions is the most obvious advantage in the social sphere of community gardens, but several other aspects exist, for example thoughtful lifestyle, the development of a self-care culture, getting used to long-term planning, receiving good quality food in case of low-budget families or the unemployed, enhanced self-esteem due to social activity, and the development of group identity. (KÉKA, n.d.; Koay, Goh, & Teh, 2020))

According to KÉKA (nd.), community and education gardens can both serve the purpose of environmental, horticultural, and agricultural education through being a space for productive free-time activities, besides strengthening cooperation and responsibility in youth. Primary, high-school and university students can benefit the most if their classes or lectures are combined with practical outdoor knowledge transfer. The SZIA Garden can be mentioned as an existing example of such an outdoor setting (Diverzitás Közhasznú Alapítvány, n.d.; *SZIA Agroecological Garden*, 2025).

In the field of environmentalism, the fundamental benefits include developing an environmentally friendly lifestyle, maintaining a healthy microclimate due to transpiration and the filtering effect of water, learning about composting through real-life practice, which can also serve the aim of reducing waste, besides creating new, nutrient-dense soil, and cutting transport emissions by consuming local produce. (KÉKA, n.d.)

By researching how student-led agroecological volunteer programs in university contexts contribute to social learning, community building, and the popularization of agroecological practices, this study seeks to identify the characteristics of participating students, explore their underlying motivations for joining, and examine their perceived academic, personal, and professional benefits, as well as the key outcomes and strengths they recognized after completing the 10-week “Experience-based volunteer program with an agroecological base” organic gardening Volunteer Program.

3. Methods used

The SZIA Agroecological Garden (SZIA Garden) (Figure 1) is an agroecological and organic community garden, run by student volunteers of the Hungarian University of Agriculture and Life Sciences (MATE) and a student coordinator since 2020. Located at the Szent István Campus of the university, it is easily approachable from any point of it, for example the dormitories, lying within a 10-minute walk. It is also not far from the train station, which borders it from the other side, only 2 minutes on foot. Besides students gardening there, it hosts some plots for a PhD research which is centered around the connection of agroecology and soil health, and gives space for another PhD research, which is about drone mapping for plant protection purposes. The area is maintained in co-operation with the Diversity Public Utility Foundation, whose gardener provides professional help for the students and gives them advice whenever needed, while maintaining organic vegetable, spice, and herb production on their own fields in the SZIA Garden. The whole area is approximately 3000 m², with students using about 300 m² in the form of field beds and raised beds, but the students' plots could be expanded upon agreement after taking mutual needs into account. The project is also supported professionally by the Institute of Rural Development and Sustainable Economy and the Directorate for International Relations and Development of MATE in terms of financial support. (SZIA Agroecological Garden, 2025)

Figure 1: Location and layout of the SZIA Agroecological Garden
(Source: own image captured in Apple Maps (2025))



3.1. Volunteer Program in the SZIA Agroecological Garden

When the measures of a lockdown due to the COVID-19 pandemic were announced in Hungary in April 2020, Hungarian students were asked to leave the campus, while hundreds of international students of the former Szent István University, known as MATE from 2021, who resided in the dormitory of Gödöllő, were forced to change their daily routine and their plans for the summer ahead. Classes were moved to an online system, limiting their mobility and social interaction. In addition, the indefinite lockdown cancelled their plans to travel home, work, or go on holiday. Consequently, the students were exposed to high levels of stress and anxiety that needed to be addressed immediately using the resources available under unprecedented circumstances. This is how the “International Students Community Garden” emerged as a student-based initiative to alleviate the physical, emotional, and economic impacts of the lockdown through the creation of an agroecological garden that promoted outdoor hands-on work, social development, and the regular provision of healthy, fresh, and affordable food for the group's members. The Volunteer Program named “Experience-based volunteer program with an agroecological base” continued running even after the lockdowns were no longer in place, and students continue making organized efforts in the SZIA Garden with the help of the student coordinator, to grow organically produced vegetables, spices, and herbs (Figure 2). They donate their energy, time, and skills to gain practical experience in organic production and agroecology, without monetary compensation. The program pays great attention to community engagement, allowing people to give back, gain experience, and make a positive impact. During the harvesting season, students distribute the harvested vegetables or cook food out of them, which they then consume together in the form of picnics. (*SZIA Agroecological Garden, 2025*)

Figure 2: Volunteers gardening together in the SZIA Agroecological Garden
(Source: own image (2025))



3.2. Preparatory phase

The execution of the first phase, the preparation for this research, started in the first week of March 2025, when I began my internship in the SZIA Garden. I was working with the gardeners of the Diversity Public Utility Foundation throughout this month, 20 hours a week. During March, while pursuing the other half of my internship at the Directorate General for International Relations and Development, I had some time to look into the documents that the previous coordinator of the Volunteer Program left behind. Besides understanding the history of the garden and earlier good practices, I also got to know the details of its management and learnt about the aim of the Volunteer Program in respect to the volunteering students. By becoming familiar with these key pieces of information, the administrative tasks could be started on the third week.

3.3. Application for the Volunteer Program

For the measurability of the Volunteer Program, students who wished to participate had to fill in an application form, ensuring the collection of information for preparing statistics. The registration form was combined with a questionnaire, so enough data was collected for carrying out both quantitative and qualitative analysis. This was done by taking the questionnaire sheet of the preceding programs as an example and extending it with questions relevant to my research.

3.3.1. Content of the application sheet

The application sheet consisted of 9 main groups of questions, covering personal and contact information, academic background, experience and awareness, availability and practical planning, motivations and interests, learning and collaboration style, behavioral and environmental impact, community and outreach ethics, and some additional notes.

Questions about personal and contact information included name, age, country, gender, e-mail for notification, and phone number for creating a WhatsApp group chat.

Information about the level of studies, the study program, and how this volunteer role aligns with personal academic/career goals was gathered.

The experience and awareness section of the questions consisted of the following subjects: gardening experience, if they volunteered at the SZIA Garden before, if they actively participated in any community development/sustainability initiative in Hungary or in their own country, and if yes, naming it. If they are familiar with the concept of agroecology, food sovereignty, solidarity economy, if they consider themselves aware of food/environmental issues, and if they take action either individually or in groups about food/environmental issues, if so, then specifying it.

About availability and practical planning, the following pieces of information were asked: how much time can they commit to volunteering each week on a 1-10 scale, when they are available, if they have any physical limitations or health concerns we should know about, and if yes, with specification.

The inner drives and interests section included: choosing their motivation for application, describing themselves briefly; explaining why they think they are a good candidate to be part of the SZIA Garden (in maximum 10-12 sentences), and if there is any task or area within the garden that interests them the most, summarized (in a maximum of 5 sentences).

Questions about learning and collaboration included: ranking their top 3 learning priorities, choosing their preferred learning style, if they are interested in leading future workshops or events, if they could suggest topics for workshop activities (concluded in a maximum of 5 sentences), and which collaboration style best describes them.

The community and outreach ethics section contained listing 3 people and/or organizations they would connect this garden's mission to (written in maximum 3 sentences), and if their responses could be referenced anonymously in thesis publications.

The additional notes question group contained: if there is anything else they would like us to know about their interest in volunteering with us.

By the students answering most of these various questions, I was able to learn about the target group of the Volunteer Program in an even broader sense than was needed for my research questions. This was essential for the qualitative evaluation of the volunteers' motivation letters so that the target group's characteristics could be understood better.

3.3.2. Legalizing data collection

Data collection was done with great care for the General Data Protection Regulation (GDPR), in the form of a digital questionnaire through MATE's Lime Survey system. People who revised the pre-prepared registration form from the professional side were employees from the Institute of Rural Development and Sustainable Economy, regarding structure and linguistic clarity, the Directorate General for International Relations and Development, who also assisted in the legal framework, and, most importantly, the Legal Department for respecting privacy and security law (GDPR). All data collected was imported into an Excel sheet for better readability and an easier-to-interpret structure.

3.3.3. Call for application

A total of 10,208 students received the advertisement of the Volunteer Program from the Buda and Szent István Campuses of MATE via the official study administration system, the Neptun TR, on 25th March 2025. The message was as follows:

“Open call to MATE Students from any program and level!

The experience-learning volunteer program with agroecological and organic base, taking place in the SZIA Agroecological Garden of MATE (Gödöllő Campus) is starting soon.

If you are committed to working towards creating a community around food, gardening, and preserving the environment, this is your opportunity to join the SZIA Garden volunteer program.

Deadlines for the application:

- First deadline: 9 AM 30th March, 2025
- Second deadline (ONLY considered if free spots remain): 9 AM 6th April, 2025
- Final deadline (ONLY for recreation, for future consideration): 9 AM 4th May, 2025

Announcement of application results:

- After the first deadline: 31st March, 2025
- After the second deadline: 7th April, 2025
- After the final deadline (ONLY for recreation, for future consideration): 5th May, 2025

Program duration: 10 weeks

Start of the program: 2nd April, 2025

At the end of the program, the students who actively participated in the activities will receive a certificate of completion. Besides, students share the harvested vegetables, which they can take for free from the garden.

Fill out the application form to have a chance to become a SZIA volunteer!

<https://onlinekutatas.uni-mate.hu/index.php/476556>

If you need any further information please do not hesitate to contact us via e-mail: sziaarden@gmail.com”

A total of 49 sheets were filled out fully, being the 49 students who assumed an obligation by it, while another 61 applications were started, but were not finished, adding up to a total of 110 received registration forms after the 4th May, the very last deadline.

3.3.4. Selection of applicants

Due to receiving more applications than the number of volunteers the garden could host, 24 volunteers were chosen for the Volunteer Program. Selection was not made by using a strict evaluation form for the answers, but by considering the overall qualities of the candidates for creating a diverse group. Special care was taken for motivation, the balance between male and female students, study programs, study levels, weekly availability, and gardening experience. In this thesis, data from all 49 applicants are analyzed to answer the research questions, as all of them were members of the target group.

3.3.5. Methodology of evaluating the application sheets

To answer the research questions, the most important pieces of data to be analyzed were about volunteering students' age, nationality, gender, level of studies, study program, gardening experience, weekly availability for gardening activities in hours, inner drives, their ideas about the possible benefits and key takeaways of the program at the moment of application and their evaluation of the Volunteer Program concerning its strengths and benefits.

Quantitative and qualitative measurements were pursued for the assessment of the data obtained from the application sheets and the written feedback. Quantitative research can produce outcome data from the gathered input that are numeric results and can often be generalized to a larger population, while qualitative research uses interviews and creates precise and accurate data from the participant's own perspective, rather than the investigator's own view (Verhoef & Casebeer, 1997). Content analysis was used, which is a tool to objectively measure how often specific keywords, concepts, or themes appear in qualitative data (Hsieh & Shannon, 2005).

For the quantitative measurements in case of age, nationality, gender, level of studies, study program, gardening experience, and weekly availability for gardening activities in hours, descriptive statistical analysis was used. Mean, median, mode, standard deviation, and range were calculated in all cases to receive numerical output.

In response to the research question, "What were the inner drives of students who showed interest in joining the Volunteer Program by filling in the application form?", a qualitative analysis method was employed, based on data collected from the application sheet. Questions, in the case of which the answers were considered included "Describe yourself briefly and explain why you think you are a good candidate to be part of the SZIA garden (max. 10-12 sentences)", "Are there any tasks or areas within the garden that interest you the most? (max 5 sentences)", "Choose your motivation for application" (Skill development/ Community connection/ Interest in agroecology/ Other), "Is there anything else you would like us to know about you or your interest in volunteering with us?", "Rank your top 3 learning priorities" (Organic farming techniques/ Agroecology principles/ Team collaboration/ Cultural exchange). "Choose your motivation for application" (Skill development/ Community connection). After reading the answers of all applicants, the inner drives of students could be grouped into those 3 categories, which were outlined previously (Section 2.1) as the fields of agroecology; science, practice, and social movement. The gathered keywords and expressions were collected from

the students' registration form (Figure 3). Its interpretation and evaluation were done in an Excel file, with the possibility of each application belonging to more than one of the categories.

Figure 3: Word cloud based on the key expressions used for categorization
(Source: own word cloud (2015))



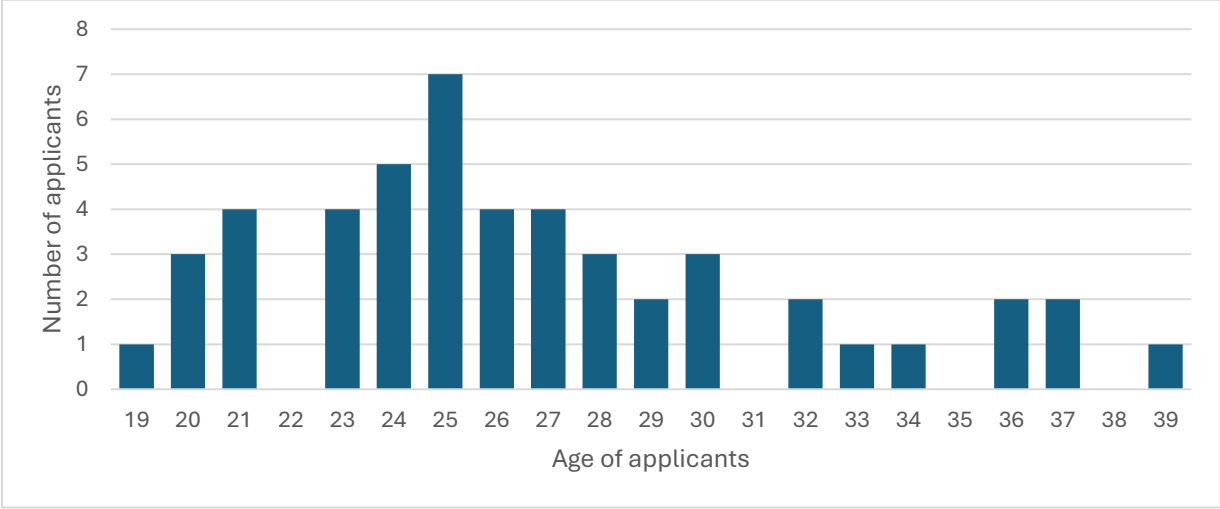
To answer the research question “What did interested students think the possible benefits of the Volunteer Program could be for their academic and/or career goals and what other key takeaways did they think of during the application?”, it was necessary to assess the answers for the following questions in the application sheet: “How does this volunteer role align with your career/academic goals?”, “Describe yourself briefly and explain why you think you are a good candidate to be part of the SZIA garden (max. 10-12 sentences)”“Is there anything else you would like us to know about you or your interest in volunteering with us?”.

Providing feedback about the Volunteer Program was requested from the students in September, in a semi-structured, written format, 3 months after the Volunteer Program ended. The content of the message sent to them via WhatsApp was as follows: “I’m reaching out to ask if you could summarize your experience as a SZIA Garden volunteer as your written feedback would mean a lot for the enhancement and continuation of the program.” The number of feedback received was 10. They could share their thoughts freely; neither a questionnaire nor a template for guidance was provided for them. This step serves as the reflection phase of action research. For the content analysis of their feedback, the benefits, weak points and suggestions were grouped.

4. Results and their evaluation

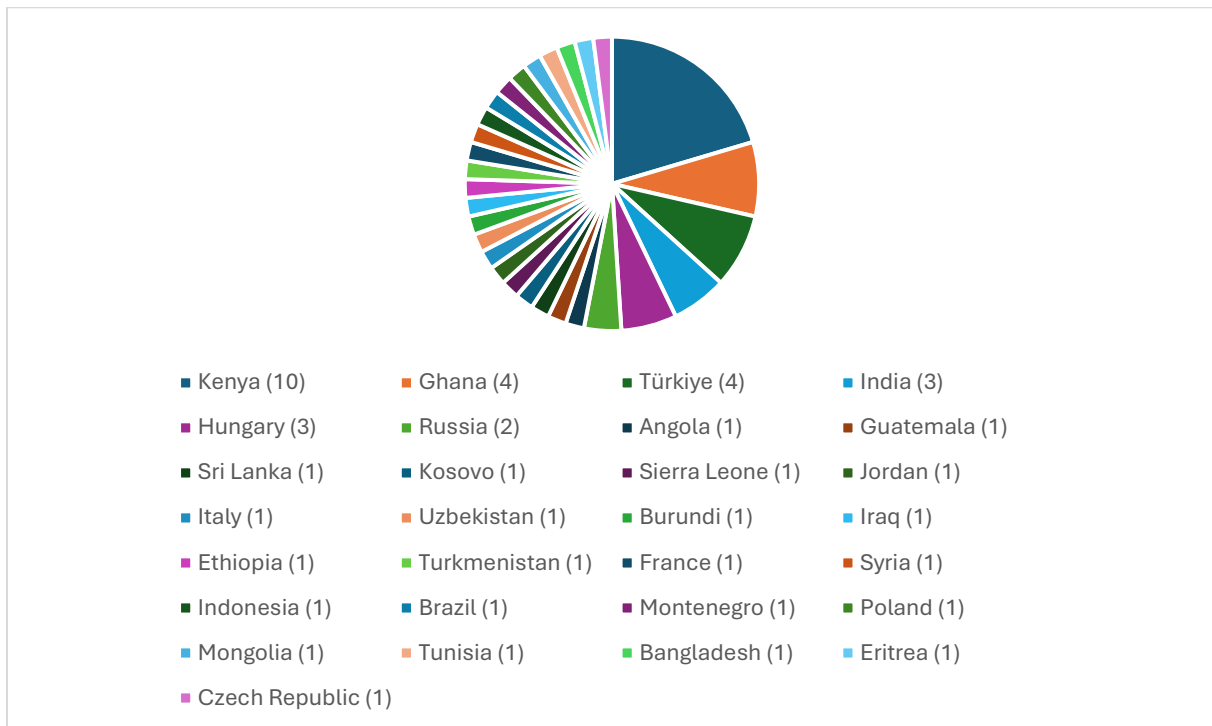
For the 49 applications received (Figure 4), the mean of 26.73, the median of 26, the mode of 25, the standard deviation of 4.89, and the range of 20 indicate that the Volunteer Program was of interest for students of all ages between 19 and 39.

Figure 4: Age distribution of the applicants
(Source: own editing based on the application sheets (2025))



When analyzing applicants from the point of country of origin (Figure 5), it was found that Kenya appeared 10 times, being the most represented country of all, with 20.4% of the applications. Ghanaian and Turkish students were 4-4 separately, others from India and Hungary appeared 3 times, respectively, while Russia participated 2 times. Other countries of origin included Angola, Guatemala, Sri Lanka, Kosovo, Sierra Leone, Jordan, Italy, Uzbekistan, Burundi, Iraq, Ethiopia, Turkmenistan, France, Syria, Indonesia, Brazil, Montenegro, Poland, Mongolia, Tunisia, Bangladesh, Eritrea, and the Czech Republic, with 1 student from each.

Figure 5: Distribution of the country of origin of the applicants
(Source: own editing based on the application sheets (2025))



Many reasons can be deduced from this diversity; the most obvious being that MATE is very much oriented towards international students, meaning that every year, about 16-18% of all students originate from abroad. The reason for this possibility lies in the many full-degree scholarships (applicable for the full time of the study program), and mobility scholarships (for short-term studies) available. Full-degree scholarships that international students can benefit from are the FAO-Hungarian Government Scholarship, Scholarship for Christian Young People (SCYP), Hungarian Diaspora Scholarship (HDS), MATE International Scholarship Program (MISP), and Stipendium Hungaricum (SH), being the most popular of all, while mobility scholarships include Erasmus+ and CEEPUS (Hungarian University of Agriculture and Life Sciences, n.d.). Joint degree programs are also popular; these are the Danube AgriFood Master (DAFM) and Erasmus Mondus Master Program in Plant Breeding (emPLANT) (Danube AgriFood Master, n.d.; emPLANT+ Master, n.d.). Besides, the biggest campus, offering the most study programs in English, is the Szent István Campus in Gödöllő, meaning that about 1100-1300 international students study there yearly. Many of them reside in the dormitories, and unlike Hungarian students, who usually travel home for the weekend, they can't visit their families regularly, meaning that they spend most of their time on campus, looking for activities during the weekend to get engaged in. Another key observation is that Hungarian students have a wide range of student associations on campus, besides having friends outside of the university

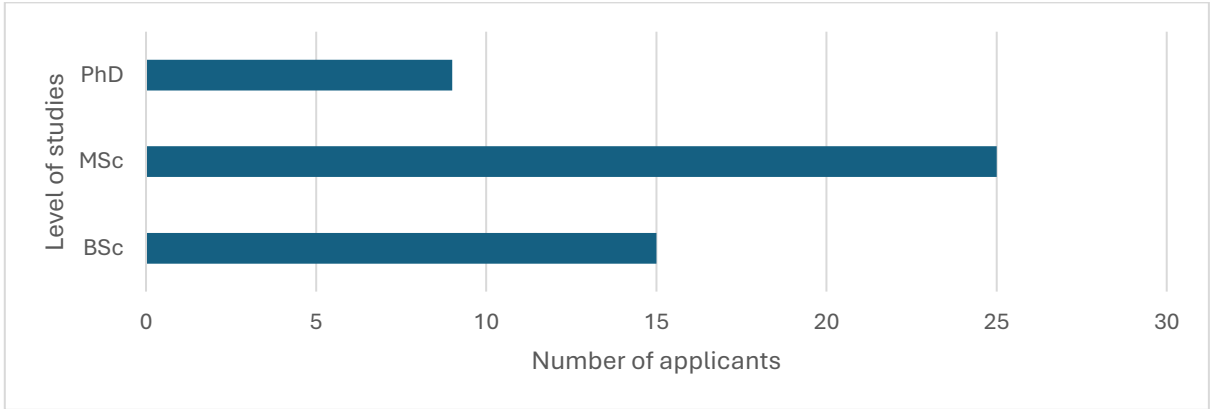
and their family members and relatives, while foreign students, mostly coming from non-European countries, are actively looking for opportunities to get to know other people and build friendships. These observations explain why so many foreign students are mobile on campus, and why the number of Hungarian students' is so low compared to international applicants. Some ideas why the number of Kenyans peaked might be due to receiving a higher number of Kenyans as compared to all the other nationalities, and/or the Kenyan community at the university being very close-knit, and/or because agriculture and gardening in general play an important role in Kenyan people's lives.

A great diversity could thus be observed in terms of languages, communication styles, religions, diets, customs and habits, social etiquette, values, and gardening experiences due to different climatic conditions in distinct parts of the world.

A frequency distribution was carried out to analyze the ratio between men and women. Out of the 49 applicants, 24 were males, and 25 were females, which shows that the difference is not significant. The Volunteer Program is of the same interest to men and women.

According to the level of studies, (Figure 6) it can be deduced from the information provided that 51% of volunteers (25 people) pursue an MSc, 30.6% a BSc (15 students), and 18.4 % a PhD (9 people) course. Distribution of applicants' level of studies

Figure 6: Distribution of applicants by the level of studies
(Source: own editing based on the application sheets (2025))



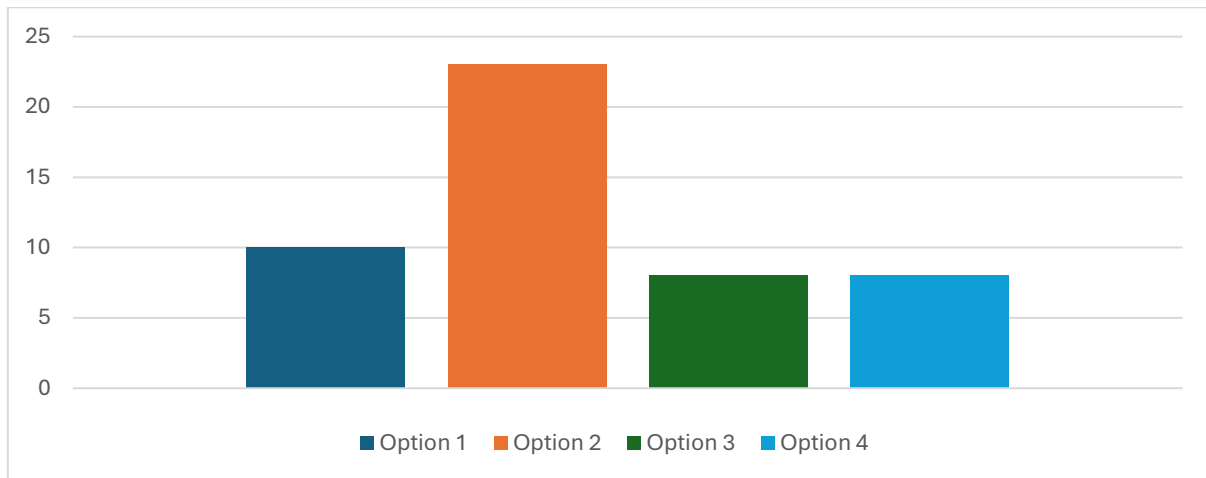
This ratio could happen because the fewest study programs are offered in English from BSc as compared to the other two categories. Also, while most PhD students are busy with education-related tasks, MSc students seem to be more flexible with time. The proportion of PhD students is smaller than that of MSc students, possibly because their interests are very much centered around a specific scientific topic. For participating in the Volunteer Program, knowledge of

agriculture or horticulture is not required, as the coordinator helps everyone throughout the gardening tasks. For this reason, the level of studies does not have significance on a personal level, but MSc students might have greater ambitions as compared to BSc students, as they have already continued their studies on a different level. Later in the community, volunteers can share their knowledge and experience on a different academic level.

The Volunteer Program was open to students from all study programs to form a community where people have strengths in different areas of agriculture or even in non-agricultural fields. Most students (5) applied from the Danube AgriFood Masters joint degree program, while other popular courses were Agricultural Biotechnology, Agricultural Engineering, and Crop Production Engineering (4 students from each course), Economics and Regional Sciences, Plant Protection Engineering (3 students from each field), while 1-2 students from Mechanical Engineering, Rural Development Engineering, Agricultural Water Management Engineering, Environmental Engineering, Wildlife Management Engineering, Nature Conservation Engineering, Supply Chain Management, Horticultural Engineering, Management and Leadership, Food Safety and Quality Engineering. This wide range shows that organic gardening and agroecology are not only attractive to students from agricultural fields, but for others too.

Students' previous gardening experience was measured by a multiple-choice question (Figure 7). The 4 options were: „I don't have gardening experience, but I am very enthusiastic, and I want to learn and grow my own food.” (Option 1), „I study agriculture, and I am a farmer at home.” (Option 2), „I study agriculture, but I don't have practical experience.” (Option 3), and „I take care of a garden back home, but I didn't study agriculture.” (Option 4). The first option was selected by 10 people (20.41%). The second option, „I study agriculture and I am a farmer at home.”, was the most common answer with 23 choices, accounting for 46.94% of all students. The third and fourth options both accounted for 16.33%, with 8-8 students choosing them.

Figure 7: Students' gardening experience
 (Source: own editing based on the application sheets (2025))



Those who picked an answer separate from „I study agriculture and I am a farmer at home.‟, accounted for more than half of the applicants (53,06%), meaning that the majority, despite being interested in farming, either do not apply the gained knowledge in practice or do gardening, but without agricultural knowledge. The need for combining theory with practice can be seen even in case of those students also, who have never studied agriculture and never tried farming.

For the question „How much time are you able to commit to volunteering each week?‟ students had to choose a number between 1 and 10. They were later categorized into 5 groups based on their availability: 0-2 (very low), 2-4 (low), 4-6 (moderate), 6-8 (high), 8-10 (very high).

Table 1: Students' weekly availability
 (Source: own work)

Category	Counts	Proportion
0–2 (very low)	2	4.1%
2–4 (low)	13	26.5%
4–6 (moderate)	21	42.9%
6–8 (high)	4	8.1%
8–10 (very high)	9	18.4%

The results show that students are motivated to take part in the gardening initiative, with most of them indicating more than 4 hours of free time for pursuing the activities. From this data, a great interest and commitment to participating can be drawn. However, throughout the 10

weeks, the availability of the volunteers highly depended on their study load, which led to them showing up less frequently as the exam period was approaching. This caused difficulties in managing the gardening activities and the drop-out of some students.

Based on the inner drives of the students, which they identified as seen in Figure 3, most of the applications belonged to two or even three dimensions. Categorizing them into only one was very rare. The majority, 42 of them, applied for the Volunteer Program to benefit from its practical aspect, the gardening work itself (Figure 8). The social dimensions were ranked as the second priority, with 29 counts. Focus on research was the least important for them, with 27 students emphasizing it in their application sheets.

The results show that, however, social belonging and connectedness, together with the desire to gain deep knowledge, for example, about pest management possibilities, companion planting, or ecosystem services, were nearly equally important; the most popular motivation, the practice of gardening, with the implementation of agroecological principles, was the top priority. It was emphasized in ways like: “An agroecological environment will allow me to further develop my practical knowledge”, “I enjoy the hands-on process of building healthy soil.” “I am particularly interested in tasks related to sustainable gardening practices such as composting, resource optimization, and planting techniques that promote biodiversity.”, “I would like to engage in hands-on work.”, “As a master’s student researching agroecological practices for soil health, I want to gain hands-on experience in implementing these methods in a real farming environment.”

Figure 8: Volunteers engaging in hands-on practices
(Source: own image (2025))



Some quotes that support the dimension of the social movement are: “I am particularly drawn to the program’s focus on community involvement and cultural exchange.”, “I am eager to learn from and collaborate with like-minded individuals who share a vision for sustainable farming.” “I will also be able to share my culture with other students.”. “I would like to get this opportunity to interact with other students”. These and plenty of other motivations of students indicate the importance of community-building initiatives at universities.

Those whose focus seemed to be research-oriented wrote: “It is very interesting to me, as my study background is organic agriculture and I would like to gain more knowledge about the agroecological aspects.”, “While I am a PhD student in the Institute of Agronomy, I have a master's degree in organic agriculture. I would like to participate in the research group of the SZIA Garden, if you have, especially about vegetable and crop production.”, “I love observing and conducting research, and I have a deep passion for my field of study.” According to such motivations that applicants shared on the application sheet, it can be deduced that science plays

an important role in agroecology, which should not be forgotten despite the smallest interest among all aspects.

Some interesting motivations for joining the Volunteer Program were “I want to do this volunteer service for religious purposes.”, “I just want to spend my free time in a meaningful way”, “I don't have gardening experience, but I am very enthusiastic and want to learn and grow my own food.”, and “I am not just looking to grow crops - I want to grow knowledge, community, and solutions for a healthier food system.” to mention some.

Students, at the time of application, thought about a handful of possible benefits of the Volunteer Program that could contribute to achieving their academic and/or career goals. A list of some includes: “It will help me to work in a team with other volunteers.”, “This role will allow me to engage with eco-friendly agricultural techniques, soil health improvement, water conservation, and biodiversity preservation, which are critical aspects of rural development.”, “This program could contribute to achieving my goal, to establish a demonstration agroecological farm that showcases sustainable practices.”, “This experience will give me practical knowledge about organic farming and working in a vegetable garden.”, “This role will give me hands-on farming experience, which is essential for starting my own mixed farm.”. Besides fieldwork itself, mentioned as one of the most popular benefits, engaging in teamwork and learning through practice about organic and agroecological farming were also emphasized to be of great importance for many applicants. These and some other benefits are crucial experiences and skills that are very much needed in the world of work.

Based on the volunteers' written feedback, of which 10 were received, the strengths and benefits of the Volunteer Program could be identified. Most of them would recommend it to their peers, and several of them reported wholly positive experiences with no negatives. The most emphasized aspect was a welcoming and collaborative team with a strong sense of community; an inclusive and international environment that fosters cross-cultural exchange. Examples written were “meeting lots of foreigners” and international connectedness through meal sharing on weekly picnics. From an organizational point of view, better and more frequent communication, stronger social-media presence, and more efficient scheduling of work hours compared to previous volunteering cycles (run before March 2025) were claimed. Hands-on learning through practical skills in organic farming, like soil preparation, planting, the use of tools, composting, intercropping, and crop rotation, plus trying new tasks, were said to be highly beneficial, especially by urban participants. Benefits for health and well-being included “gardening relaxation” which eases academic fatigue by boosting physical well-being and

relaxing the mind. Some also mentioned the access to free vegetables as a benefit. Possibilities for improvement included learning more about agroecology on a theoretical level and improving the weekend potlucks by adding cooking activities for a more inclusive cultural exchange.

5. Conclusions and proposals

To conclude, the literature states that agroecology is a combination of transdisciplinary science, social movement, and a collection of farming practices (FAO, 2018; Helenius, Wezel, & Francis, 2019; Rodics & Ujj, 2022). The interests of the applicants show that all three dimensions were present, with hands-on practice being the primary motivation, social aspect mentioned in second place, and research and scientific interests in third place. The results prove that students likely enter the Volunteer Program for the agroecological, on-field practices, while social connection and research are meaningful, but secondary entry points. In practical terms, student volunteering in an organic and agroecological garden is an effective method for rooting principles and skills through their practical application. The results align with the elements of FAO and the principles of HLPE, the most prominent is the diversity of people, nationalities, and practices. The co-creation and sharing of knowledge between students from different study levels and programs, advocacy for human rights through inclusion and the promotion of well-being, recycling and efficiency by composting and optimizing resource management are also meaningful (FAO, 2018; HLPE, 2019; Ujj et al., 2022). Prior research emphasizes the potential of community gardens for community building, intercultural exchange, psychosocial benefits, and boosting time spent outdoors (KÉKA, n.d.; Egli, Oliver, & Tautolo, 2016; Pullin et al., 2014; Hou, 2017). The feedback supports and extends those claims: students highlighted a welcoming, collaborative, multinational, and multicultural environment, “gardening relaxation”, fighting academic stress and tiredness, and weekly picnics that strengthen friendships. The program bridges the gap between theory and practice for all students, whether they come from agricultural or non-agricultural fields. Offering practical competence for those already familiar with the concepts of organic farming and agroecology, and theoretical knowledge for those who are familiar with gardening but lack the understanding of the methods, is crucial. The literature states that agroecology can best be studied through action research, with which the program’s schedule of weekly tasks, reflection through feedback, and peer learning complies. Literature binds agroecology and community gardens to well-being, which the students validated with reports of pleasure in physical activity and relief from academic

stress (Pullin et al., 2014; KÉKA, n.d.). Yet students asked for deeper theoretical content and cooking activities besides the regular picnics on the weekend, however, their availability was fluctuating as the exam period was approaching. Students linked participation to career aims, including starting farms, leading rural development initiatives, and establishing demonstration farms. Meanwhile, teamwork, tool use, compost preparation, and rotation planning are valuable skills in the field of agriculture and are often desired by employers. This evidence proves that student-run organic/agroecological gardens offer engagement in relaxing activities, and psychosocial benefits.

Additionally, my personal views on the possibilities for the improvement of this program are provided for further consideration: the incorporation of SZIA Garden visits to subject thematics, as field trips, rewarding students with credits for active participation in the Volunteer Program, while requesting more regular presence in the garden in exchange to restrict fluctuation, and adding cooking events and other occasions to boost cultural exchange. Adding short, theory-rich “study sessions” that are in connection with field tasks can also enhance the overall value of the Volunteer Program.

6. Summary

The thesis examines the social dimension of agroecology through an “Experience based volunteer program with an agroecological base” run in the SZIA Agroecological Garden at the Szent István Campus of the Hungarian University of Agriculture and Life Sciences (MATE) during April-June 2025. Universities are positioned as social actors that can popularize sustainable practices, such as agroecological community gardens, that act as complex systems for practical, social, and scientific matters. The SZIA Garden is an agroecological and organic community garden, with about 300 m² of the whole area being primarily managed by volunteer students and a student coordinator. The study researched the characteristics of the applicants’ group: age, nationality, gender, the level and program of study, gardening experience, and weekly availability of students, as well as their inner drives for joining, and their views on how participating in the Volunteer Program can benefit their academic and/or career goals. Furthermore, the feedback of the participants was also analyzed with an emphasis on the strengths and benefits of the program. The research was primarily conducted based on the 49 registration forms received, which were all combined with a questionnaire. Quantitative analysis, in the form of descriptive statistics, was used to study the applicants’ profile, and content analysis, a tool for qualitative analysis, was done for the assessment of students’ interest

in agroecology's three dimensions (science, practice, and social movement), and in the case of processing the 10 post-program feedback messages. Results show there was a great diversity in age, nationality, level and field of studies, and gardening experience, as well as availability of volunteers in hours per week, thus all these factors did not identify a specific target group. Practical, hands-on engagement was at the top priority for students, while community aspects came in second place, and research orientation was the least important, but still quite significant. The expected career and/or academic benefits mentioned included practicing teamwork, eco-friendly techniques, gaining experience in the field of organic farming, and learning based on experience. Three months after the 10-week program, the written reflections highlighted a collaborative and international team with great cultural exchange, many opportunities for hands-on learning, and the promotion of well-being through outdoor physical activities, while suggested improvements included more theoretical learning and cooking on the weekend for even more cultural exchange. Overall, the program effectively promotes all three dimensions of agroecology within a higher education setting, and popularizes models of community-based, hands-on approach to sustainable food systems education.

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MATE Organizational and Operational Regulations

III. Requirements for Students

III.1. Study and Examination Regulations

Appendix 6.13: The MATE Uniform Thesis /thesis / final thesis / portfolio guidelines

Annex 4.2: Declaration of public access and authenticity of the thesis/thesis/dissertation/portfolio

DECLARATION

the public access and authenticity of the thesis

Student's name: Berill Elizabet Kinik
Student's Neptun code: BONXX7
Title of thesis: Exploring the social aspects of agroecology through a case study of the student volunteer program in the SZIA Agroecological Garden at MATE, Hungary
Year of publication: 2025.
Name of the consultant's institute: Institute of Rural Development and Sustainable Economy
Name of consultant's department: Department of Agroecology and Organic Farming

I declare that the thesis submitted by me is an individual, original work of my own intellectual creation. I have clearly indicated the parts of my thesis or dissertation which I have taken from other authors' work and have included them in the bibliography. Furthermore, I declare that the artificial intelligence tools (e.g. text generation, linguistic correction, translation, data analysis) used during the preparation of the thesis did not substitute my own research and creative work; their use was indicated either in the list of sources or in the methodology section, and I acted in accordance with professional and ethical expectations.

If the above statement is untrue, I understand that I will be disqualified from the final examination by the final examination board and that I will have to take the final examination after writing a new thesis.

I do not allow editing of the submitted thesis, but I allow the viewing and printing, which is a PDF document.


I acknowledge that the use and exploitation of my thesis as an intellectual work is governed by the intellectual property management regulations of the Hungarian University of Agricultural and Life Sciences.

I acknowledge that the electronic version of my thesis will be uploaded to the library repository of the Hungarian University of Agricultural and Life Sciences. I acknowledge that the defended and

- not confidential thesis after the defence
- confidential thesis 5 years after the submission

will be available publicly and can be searched in the repository system of the University.

Date: 2025. year 10. month 28. day


Student's signature

DECLARATION

As a consultant of Berill Elizabet Kinik (student Neptun code: B0NXX7), I declare that I have reviewed the thesis and that I have informed the student of the requirements, legal and ethical rules for the correct handling of literary sources.

I recommend / do not recommend the thesis to be defended in the final examination.

The thesis contains a state or official secret: yes no

Date: 2025. 11. 03.



insider consultant
Apolka Ujj

Declaration of Students and Doctoral Candidates on the Use of Artificial Intelligence (AI)”

1. general information:

Name of the student:	Kinik Berill Elizabet
Neptun ID:	BONXX7
Level of program (mark with X):	<input checked="" type="checkbox"/> BSc/BA <input type="checkbox"/> MSc/MA <input type="checkbox"/> Doctoral School (PhD) <input type="checkbox"/> Other:
Name and code of the subject*:	Szakdolgozat készítés KERTU073N
Title of the work:	EXPLORING THE SOCIAL ASPECTS OF AGROECOLOGY THROUGH A CASE STUDY OF THE STUDENT VOLUNTEER PROGRAM IN THE SZIA AGROECOLOGICAL GARDEN AT MATE, HUNGARY

* Not required to be completed in the case of a doctoral dissertation.

2. Declaration on the Use of AI

I, the undersigned, fully aware of my ethical responsibility, make the following declaration:

(Please choose one of the options below!)

A) I have not used any artificial intelligence system or service.

(If you selected this option, completing the subsequent tables is not required.)

B) I have used an artificial intelligence system or service.

(Please fill in the relevant tables!)

3. Details of Artificial Intelligence Usage

TABLE I: Assistant or Minor Usage (e.g., translation, language proofreading, brainstorming, etc.)

(For these uses, attaching the specific prompts and responses is not required.)

Purpose of Use	Name and Version of the AI Tool Used	Affected Section (if not applicable to the entire text)

TABLE II: Significant Content Contribution (e.g., generating an entire figure or a longer text section)

(In these cases, documenting the key prompts used and the raw responses provided by the AI, and attaching them as an appendix to the work, is required.)

Purpose of Use	Name, Version, and Access Information of the AI Tool Used	Exact Number of the Affected Chapter / Figure / Table	Entry Number of the Appendix Containing the Prompt Log

3/A. Additional Rules Prescribed by the Lecturer (if any)

If the instructor or supervisor of the course has established specific rules or expectations regarding the use of AI tools, please summarize them in the field below:

For example: prohibition of AI use for certain types of tasks; only specific tools are permitted; different citation requirements; documentation format, etc.

Rules Prescribed by the Lecturer or Supervisor

.....

.....

.....

.....

4. Declaration Applicable to All Students:

I declare that I have critically reviewed, edited, and incorporated any content potentially generated by AI in all cases. I take full responsibility for every element of the submitted work, including its originality and scientific validity. I acknowledge that the Hungarian University of Agriculture and Life Sciences may check the submitted work with an artificial intelligence detector and may initiate proceedings if my declaration is found to be false or incomplete.

Place and Date: Budapest....., 2025.10..... month 27.. day

Kink Beilla Csizabet.....

Signature of the Student

[Handwritten Signature].....

Signature of the Advisor/Supervisor