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POTENTIAL OF INCLUDING SOCIAL FARMING INITIATIVES WITHIN AGROECOLOGICAL TRANSITION IN HUNGARIAN FARMS

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Abstract: The European Model of Agriculture has been developed based on multifunctional agriculture that plays an essential role in increasing the vitality of rural areas in Europe. The agroecological approach is strongly related to multifunctional agriculture as well as social farming that is unique for visualising the social aspect of sustainability in agriculture. This paper aims to explore and evaluate the awareness and attitude of Hungarian farmers, based on indicators derived from in-depth interviews focused on agroecological transition, in order to identify possible spaces for social farming initiatives. For this purpose, the indicators are analysed using the existing 10 elements of agroecology created by FAO as a reference point. The aim of this analysis is to understand which basic element-related practices are preferred, whether social elements are included or not, and to determine which areas need to be strengthened in education in order to encourage farmers to be open to addressing social issues. The results of the research confirm indicators which are present in the daily practices of those farms that do not necessarily identify themselves as social farms. In addition to their willingness to potentially transition to agroecological systems, they have the basic elements and attitude to adopt social farming.

Keywords: multifunctional agriculture, agroecology (AE), agroecological elements, social farming, vocational training

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Absztrakt: Az Európai Mezőgazdasági Modell a multifunkcionális mezőgazdaságra alapozva kiemelkedően fontos szerepet játszik az európai vidéki területek életképességének növelésében. Az agroökológia holisztikus megközelítése szintén szorosan összefonódik a multifunkcionális mezőgazdasággal, valamint a szociális farmgazdálkodással, mely utóbbi egyedülálló a fenntartható mezőgazdaság társadalmi aspektusának megjelenítésében. Jelen kutatás célja, hogy felmérje a magyar gazdálkodók tudatosságát és értékelje a szociális farmgazdálkodához történő hozzáállásukat. Ennek érdekében, a trAEce projekt keretén belül készült gazdálkodói mélyinterjúk alapján, indikátorokat azonosítottunk be, majd megvizsgáltuk, hogy azok mennyiben felelnek meg a FAO agroökológiai alapelemeknek. Ez az összehasonlítás segíti annak megértését, hogy mely alapvető agroökológiai elemekkel kapcsolatos gyakorlatokat részesítik előnyben a gazdálkodók és a szociális farmgazdálkodáshoz köthető gyakorlatok fellelhetőek-e napi munkájukban. Az eredmények ismeretében meghatározható az is, hogy mely területeket kell megerősíteni az oktatásban annak érdekében, hogy a gazdálkodókat nyitottságra ösztönözzük a szociális kérdésekben. A kutatás eredményei alátámasztják, hogy a magukat nem feltétlenül szociális gazdaságként azonosító gazdaságok napi rutinjában jelen vannak a társadalmi vonatkozású gyakorlatok. Azon túl, hogy hajlandóságot mutatnak az agroökológiai rendszerben való gondolkodásra és gazdálkodásra, már most megvannak a szociális farmgazdálkodás alapelemei, és a szociális farmgazdálkodásra történő átálláshoz is pozitívan viszonyulnak.

Kulcsszavak: multifunkciós mezőgazdaság, agroökológia, agroökológia alapelemek, szociális farmgazdálkodás, szakképzés

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Highlights:

- The motivation of farmers to introduce multifunctional farming can be a starting point for the development of social farms in Hungary.
- Among the FAO 10 AE elements there are relevant ones to social farming.
- Farmers are willing to expand and transfer their professional knowledge, especially by learning from a credible farmer, during a farm visit.

- Practice-oriented training is of paramount importance for AE and raises awareness of the social and environmental consequences of farming practices.

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1. Introduction

The concept of multifunctional agriculture (MFA) from a wider perspective refers to the fact that the sector in addition to its role as primary production (food and fiber) provider may also perform environmental and social functions "such as renewable natural resources management, landscape and biodiversity conservation and contribution to the socio-economic viability of rural areas" (Renting et al., 2009). MFA has significantly influenced many scientific and policy approaches. Among others, the concept served as a basis and central feature of the European Model of Agriculture (EMA), which became a cornerstone of Common Agricultural Policy (CAP) in 1997 (Knickel et al., 2004).

According to several authors, the "common denominator for diverse farm choices" within the multifunctional approach is the willingness of farmers to undertake multiple responsibilities, rethink their profit-maximising goals, build new cross-sectoral and social alliances, and produce and sell in a more socially responsible way (Van der Ploeg & Renting, 2000; Van Huylenbroeck & Durand 2003; Renting et al., 2009, Dessein et al., 2013).

Links between agroecology and agricultural multifunctionality undoubtedly exist. The agricultural multifunctionality concept helps to manage biases in agroecology (e.g., Anderson et al. (2021) summarise the disabling conditions or 'lock-ins' in six critical domains in agroecological transition) and "thus overcome the conventional chasm between ecological research and social realities in agroecology-based development" (Amekawa et al., 2010).

Social farming adopts a multifunctional view of agriculture and the MFA is also the second of the four stages (a pioneering situation, multifunctional agriculture, SF as a recognised system and SF as an inclusive model) of the current dynamic process concerning its organisation in Europe (Di Jacovo & O'Connor, 2009). On the one hand, it is linked to the social function of agriculture by providing integration or care and therapy to people with disabilities and/or at risk of social exclusion. On the other hand, the different broadening activities performed serve nature and landscape conservation, thus strengthening the environmental function of agriculture. In addition, social farming provides vital support for personal growth and increased quality of life experience, which can make an enormous difference to concerned individuals.

At the time of its emergence in the 1980s, agroecology (AE) was defined as a science of sustainable agriculture based on the ability to design and manage sustainable agroecosystems by applying ecological concepts and principles (Altieri, 2018; Gliessman, 2013). This definition later broadened by extending agroecosystems' approach beyond farms, to all aspects (ecological, economic and social) and participants of the food system. With the appearance of new approaches and dimensions, AE has evolved into a scientific discipline that provides novel ways for farmers and scholars who are open to preserving the environment and improving quality of life while striving to increase productivity and sustainability (Francis et al., 2003). Agroecology is integrative in terms of research, education and knowledge exchange, transdisciplinary regarding knowledge and experience, participatory concerning the involvement of stakeholders and action-oriented as a reference to alternative social structures and policy action that oppose those in the present industrial food system (Gliessman, 2018).

trAEce Erasmus+ project is meant to provide tools to farmers and trainers to implement agroecological practice with its social dimension during their daily work and disseminate this knowledge and experience to reach the wider farming community. This paper aims to evaluate Hungarian farmers' awareness and attitude towards applying social farming. For this purpose, indicators derived from trAEce project farmers' interviews were developed and thereafter their compliance with agroecological principles was investigated.

2. Theoretical background

2.1 Multifunctional agriculture concept as a platform for social farming

Analysing the diversity and diversification of agriculture is a topical issue in many types of research, even though agriculture has always been multitasking. The idea of multifunctional agriculture covers economic, social, and ecological aspects that have been applied in several countries by small farmers for many years (Stuiver, 2006; Liang et al., 2012). The novelty is that there is an increasing public demand for non-commodity outputs derived from agriculture (Song et al. 2020).

The multifunctional character of agriculture is unquestionable, as in addition to producing food and raw material, agriculture also produces a wide range of non-food goods, provides services, alters the environment, affects social and cultural systems and contributes to economic growth (FAO, 1992). Based on the three sides of the farm enterprise, Van der Ploeg and Roep (2003) determine three above-mentioned trends in the move towards multifunctionality and diversification: broadening, deepening and regrounding. Nevertheless, the concept of MFA can still be interpreted in several ways, but in any case, it can be derived from the aspects of broadening such as agro-tourism and value adding (Busby and Rendle, 2000; Sharpley and Vass, 2006), deepening such as direct sales, community supported agriculture, and re-grounding such as off-farm income and jobs beyond traditional farming operations (Horváth and Nagy, 2012). Often a combination of these trends appears on farms, which identifies various levels of multifunctionality (Aguglia et al., 2009)

Based on the perception of the Food and Agriculture Organisation of the United Nations (FAO), all these functions of agriculture can contribute to the achievement of sustainable development. Their statement was already described in the Agenda 21 of the Rio Earth Summit (United Nations Conference on Environment and Development 1992) in chapter 14, which deals with the Promotion of Sustainable Agriculture and Rural Development.

As early as 1997, the Luxembourg European Council declared that agriculture in Europe had to be multifunctional, sustainable and competitive. Accordingly, the European Union's Agenda 2000 action programme provided a new financial framework for multifunctional agriculture within the second pillar of the Common Agricultural Policy (CAP) in 1999. It introduced rural development and described the integrative role of multifunctional agriculture in protecting the natural environment, the cultural landscape while providing socio-economic development (Granvik et al., 2012). It was described in the European Model of Agriculture (1998) that 'multifunctional agriculture is the sustainable way to integrate the interrelated objectives of farmers and society in three functions: i) production – to provide consumers with secure and stable supplies of healthy quality food and non-food products and to develop its competitive position on the world market based on sustainable production methods; ii) territorial – to safeguard and enhance the countryside and to provide environmental services valued by the public at large; to underpin the infrastructure, the economy and employment in a vast number of villages throughout the European Union and to prevent depopulation and desertification in more remote and difficult areas; iii) social – to contribute to reinforcing the economic and social cohesion between groups and regions – reducing disparities between the richer and poorer regions of the EU.'(CAOUE, 1999).

Expanding this concept further, the Organisation for Economic Co-operation and Development (OECD, 2001) stated that multifunctionality implies that economic activity can have multiple outputs and, as a result, can contribute to multiple societal goals simultaneously. Accordingly, multifunctionality is an activity-oriented concept that refers to the specific characteristics of the production process and its various outputs. Furthermore, it also arises as a question whether multifunctionality is a characteristic or a goal.

Despite agreed definitions, characterizations and analyses of multifunctional agriculture, the judgement, weighting and support of different functions of agriculture may differ from country to country. That is due to the countries' different climatic and geographical conditions as well as their societal situation. Accordingly, the employment effects of agriculture or the significance of agriculture in foreign trade also vary by country. Nevertheless, in terms of the most frequently mentioned elements of multifunctional

agriculture, food security, environmental issues and viability of rural areas are at the top of the list (Lankoski, 2000).

The different interpretations of MFA make the term increasingly chaotic which could be resolved if farmers „simultaneously produce food from crops and livestock (which may or may not in itself be economic), raise income from the provision of other goods or services and play a key role in delivering environmental services"; care farming – social farming in the Hungarian context (*the authors*) – is one of the activities with the capacity to respond to these demands (Leck et al. 2014).

2.2 The main concept of social farming

Social farming is one approach within the broader concept of multifunctional agriculture and by referring to the social values of agriculture can be seen as an example of a more sustainable type of MFA (Di Jacovo & O'Connor, 2009). This extension of multifunctionality enables visualising the social aspect of agriculture. Social farming (SF) is defined by the European Economic and Social Committee (EESC 2012) as follows: "*Social farming is an innovative approach that brings together two concepts: multipurpose farming and social services/health care at the local level*". Nevertheless, the term is not a legal definition and still there are conceptual differences across Europe that are due to the different SF historical developments and the countries' specific agricultural and social conditions. De Vivo et al. (2018) and Nicolosi et al. (2021) summarise the definition of SF as the activity characterised by the use of agricultural resources for the realisation of social work, which is explicitly proposed to generate benefits for vulnerable groups of the population. Furthermore, the heterogeneity of SF derived from, among others, the characteristics of the entities involved, the legal status of the initiators, the public-private financing schemes, the level of collaborations, the implemented farm models and the applied health-care system embedded in country-specific social policies (Gallis, 2007; Tulla et al. 2014, 2018; Di Iacovo, 2020).

Accordingly, the SoFarEDU international team (Moudrý et al. 2020) expanded the EESC short definition and endowed it with further content. The authors explain that social farming applies a multifunctional agriculture approach while combining farming with social (health care) services at a local level. They also highlight that social farming can promote the improvement of social and environmental awareness in line with social and solidarity principles. In terms of activities in social farming, two common elements can be distinguished: they take place on a farm or market garden and are adapted to people with "*specific needs, including educational needs."* Based on this, social farming can be considered *"a cluster of activities that use agricultural resources … to generate social services in rural or semi-rural areas, such as rehabilitation, therapy, sheltered jobs, lifelong learning and other activities contributing to social integration."* The researchers state that in this regard, social farms are places where people with special needs can maintain and improve their well-being by carrying out daily farming routines.

According to Pretty (2006) in line with the expectations of multifunctional agriculture, farmers, and typically small farmers, have been engaged in social farming long before it would have been defined and conceptualised with its recognized benefits. Furthermore, with the intensification of agriculture, the social elements of farming have gradually been pushed to the background and tended to ignore the multifunctionality of agriculture. These days, the social dimension of agriculture and green arrangements appear in varying degrees and forms in Western, Northern, Southern and Eastern Europe, in many cases with different focuses and correspondingly under different appellations such as green care, green care in agriculture, and social farming (Bock & Oosting, 2010; Moudrý et al. 2020).

In an official sense, based on the Europe 2020 strategy, social farming is a fundamental practice that transects not only agrarian activity but other key sectors such as health care, social services, environment, and employment to promote sustainable and inclusive growth in rural and often marginalised areas (Courts et al., 2020). Social farming has the potential to combine sustainable agriculture production and social function of farm process; and to integrate production factors with the protection of the environment (e.g., social-organic farming); promote local resource usage and local economy; provide quality of life in rural areas and improved social services; support tradition and working heritage. All these

contribute in the rural areas to the promotion of social justice, landscape maintenance and biodiversity (Guirado, 2014; Courts et al., 2020).

2.3 Social farming in Hungary in the European context

Across Europe, the concept of social farming is associated, and in some cases, exchangeable with the term care farming. Care farming has developed at different stages and with different orientations such as labour integration provided by community-based organisations in Italy and France. In other countries like Germany and Ireland, care farms are mostly community-based care services provided by healthcare or social care organisations. However, In the Netherlands, Norway and Belgium, privately owned and run family farms are also associated with social care (Hassink et al., 2020). While agricultural production is the primary function at several farms, others also focus on providing healthcare and social care services. In Hungary, there are no legal regulations that define social farms, rather in-farm initiatives related to care for vulnerable groups (Kajner & Jakubinyi, 2015). The MAIE project (Multifunctional Agriculture in Europe – Social and Ecological Impacts on Organic Farms) sets up categories to classify project partner countries based on the country's social farm development. According to the description of the categories – despite the fact that Hungary was not included in the analysed countries – Hungary can be classified as a pioneer country. (The four status categories are the following**:** pioneer, moderately developed, well-developed and officially recognized.) Countries with pioneer status – such as the Czech Republic, Slovenia and Bulgaria – are characterised by the rising number of social farm initiatives. Di Iacovo (2020) achieved a similar con, describing Hungary as a country with many social farm projects.

In Hungary, the establishment of the autistic manor network was the starting point of social farm development. In 2003, a government program was initiated by the Ministry of Employment and Labour that provided support for the establishment of autism manors. As a result, 16 manors were established nationwide with autism-specific services and employment programs. The founders of the organisations that created and operated the manors were affected parents. The aim of the manors was to provide high-quality, autism-specific social care that was not available in the market. As the financial support decreased, the spread of autistic manors stopped (Jakubinyi, 2011). Between 2005 and 2015, several social farm initiatives were launched independently from each other with different target groups (e.g., community farm development programs for unemployed Roma people; farm pedagogy programs for schoolchildren; animal-assisted therapy, mainly therapeutic riding for disabled children; social gardening with agricultural production, processing and eco-tourism for disabled people) (Courts et al., 2020). In 2016 the Alliance of Social Farms was founded with the aim of fostering the legal and institutional recognition of the Hungarian social farms; making recognized the social farm as an agricultural model with social, health, employment and education functions; and collecting and distributing the social farm related knowledge and information such as good practices, new initiatives, researches and educational programmes. Kajner & Jakubinyi (2015) identify 3 types of social farms in Hungary, which differ in their primary purpose, their target group and in the location where the activities take place (Table 1).

Tab 1. Social farm types in Hungary. Source: Kajner & Jakubinyi (2015)

	Target group	**Place of activities**	**Goal of activities**
Rehabilitation farm	Disadvantaged group (elderly, addicts, people with mental health issues, etc.)	Social institute	Rehabilitation
Care farm	Disadvantaged group (people with partially-reduced work capacity, homeless people, etc.)	Farm	Rehabilitation
Social farm	Pre-defined group (young people living in the care system (state custody), refugees, people living in deep poverty, etc.)	Farm	Education, Awareness shaping

Kajner & Jakubinyi (2015) explains that the rehabilitation farm is a type of social farm where disadvantaged people with special needs are actively involved in the farm work and the inspiring environment itself is part of their rehabilitation. The target group, in this case, is intellectually disabled people, psychiatric patients, the elderly, addicts, the abused, etc. In the case of rehabilitation farms, the therapeutic nature dominates. Rehabilitation farms include social, health and other institutions that organise agricultural activities themselves.

Meanwhile, the care farm type of the social farms in Hungary focuses mostly on the socialisation for value-creating work of the involved target group. They gain real work experiences that help them take care of themselves, support them in their way towards self-sufficiency. Employers on the care farm may have the limited working capacity or suffer from long-term unemployment.

Based on the differentiation of the farm types, the social farm provides the location for attitude-shaping education where disadvantaged and other target groups are involved for whom the activity and the location of the activity are important.

Kajner & Jakubinyi (2015) state that the three farm types cannot and should not be categorically separated. Their identification within the term "social farm" is not relevant at this moment as social farms do not receive different per capita subsidies for the employment of different target groups. The different names (rehabilitation farm, care farm, social farm) are derived from the main profile of the farm and their different target group, as well as the different locations of the activity. Thus, in Hungary, the social farm is a collective concept and used in general.

According to Kajner & Jakubinyi (2015), the slow development of social farms in Hungary can be attributed to several reasons. There is no comprehensive strategy related to social farms, administrative obstacles are still present and there is not enough emphasis in education on how a farmer becomes a social farmer (e.g., how farmers can cooperate with social workers and deal with disadvantaged people). Currently, the legislative definition of social farming is missing and the social service provided by social farms is not yet recognized (Nobelmann et al. 2020). Furthermore, the small producers' community of rehabilitation-type social farms (which in Hungary are often the locations of social farm activities) as a legal entity is not yet recognized, the land use of rehabilitation farm communities is not yet defined, and the sale of agricultural produce issued by rehabilitation farm communities is restricted.

The Hungarian government recognized only recently the potential of social farms. As a Hungarian political strategy, there was already a possibility for social farms to get support by submitting a project proposal within the framework of the Economic Development and Innovation Operational Program, Encouraging Social Enterprises sub-program. Also, the Hungarian government supported the Solidarity enterprises and the Community Supported Agriculture within the framework of the Hungarian Rural Development Strategy, but with less success, partly due to deficiencies in the social farm knowledge of farmers. Operators of Hungarian social farms make use of the available support possibilities in general, such as the wage subsidy scheme for accredited employment or public employment, and employment and infrastructure development grants for European projects (Bernas et al., 2020).

2.4 Agroecology (AE) as a framework

Agroecology is known as a science, a practice and a social and political movement (Altieri, 2015; Wezel et al. 2018a). It is a transdisciplinary, participatory, and action-oriented approach (Wezel et al. 2018b) applicable at different scales from the farm and agroecosystem to the whole food system (Wezel et al. 2009; 2020).

Agroecology emerged as an alternative to intensive industrialised agriculture. It focuses on creating systems following the tendency of nature towards complexity (Altieri, 2015) and it works together with the food sovereignty concept due to their mutual objective of promoting healthy relationships between nature and people.

Agroecology is not a new concept; however, it has gained recognition from grassroots organisations and social movements to the institutions and governments in the last few years (CIDSE, 2018). At a European

level, agroecology is better known mostly in western countries such as France and Portugal, consequently, in Central European countries such as Hungary, agroecology has received little attention so far (Agroecology Europe, 2020). Nevertheless, the interest is rising as the recent ongoing projects and publications related to this topic increased and new movements and organisations are forming (Bálint et al., 2020).

Principles of Agroecology

Agroecology comprises of a set of principles that guide its understanding and therefore, its application at any context and at any level (farm, agroecosystem and food system).

Principles are basic ideas or rules that explain or control how situations or activities happen or work and in order to be applied, they need to be materialised in the form of technology or practice. For instance, the agroecological principles of soil health at the farm level take the form of composting or mulching, the principle of active participation looks like consumer associations in the practice. These activities promote processes that are essential for the development of the whole system, providing livelihoods to the main stakeholders, the developing of the local community and the preservation of culture and traditions, among others.

On the one hand, the use of agroecological principles also allows for flexibility in the study of agriculture and food systems because of its strong sense of territoriality. Agroecological principles identified in the literature can take on completely different forms within the same territory or between different territories (Dumont, 2016). On the other hand, in order to know if the principles are being applied correctly, the construction of a set of more precise and restrictive indicators is highly recommended.

Accordingly, different sets of principles have been developed over time as the scales of application of agroecology have evolved, including the whole food system. One of those is the 10 Elements of Agroecology presented by the FAO. They are the result of different seminars, workshops, multi-actor meetings, the input of conceptualization from experts in the field and a final revision by international and FAO experts (FAO, 2019). The elements proposed by FAO that will help actors to operationalise agroecology are the following:

Diversity: diversification is key to agroecological transitions to ensure food security and nutrition while conserving, protecting and enhancing natural resources.

Synergies: building synergies enhances key functions across food systems, supporting production and multiple ecosystem services.

Efficiency: innovative agroecological practices produce more using less external resources.

Resilience: enhanced resilience of people, communities and ecosystems is key to sustainable food and agricultural systems.

Recycling: more recycling means agricultural production with lower economic and environmental costs.

Co-creation and sharing of knowledge: agricultural innovations respond better to local challenges when they are co-created through participatory processes.

Human and social values: protecting and improving rural livelihoods, equity and social well-being are essential for sustainable food and agricultural systems.

Culture and food traditions: by supporting healthy, diversified and culturally appropriate diets, agroecology contributes to food security and nutrition while maintaining the health of ecosystems.

Responsible governance: sustainable food and agriculture require responsible and effective governance mechanisms at different scales – from local to national to global.

Circular and solidarity economy: circular and solidarity economies that reconnect producers and consumers provide innovative solutions for living within our planetary boundaries while ensuring the social foundation for inclusive and sustainable development.

3. Methodology

This paper analyses a set of in-depth interviews conducted in the framework of the trAEce project, to explore the awareness and attitude of Hungarian farmers towards including social farming initiatives within their transition to adopting an agroecological approach.

3.1 Background of the in-depth interviews

Topics

The in-depth interviews conducted showed information knowledge, existing practices, and attitudes carried out at the farm. They were based on a guided questionnaire survey (qualitative method) which is one of the best methods of exploratory, descriptive or explanatory use in research (Babbie, 2008).

The semi-structured, individual in-depth interviews were conducted in person, online, or over the phone. The shortest interview lasted 45 minutes and the longest 120 minutes. The number of interviews varied in each trAEce project partner country, with a total of 17 in-depth interviews conducted in Hungary. In addition, the interview thread consisted of finding out about the attitude, knowledge and skills related to agroecology applied at the farm:

- Activity, sustainable management practices, challenges related to the sustainability of the farm.
- The self-assessment of the farmer, his/her knowledge and skills, his/her application in practice. In this regard, special questions were focused on the current social aspects of the farm.
- Agroecological attitude, knowledge and skills that the farmer considers important. In this regard, special questions were directed at the awareness and attitude of the farmer regarding social interactions and social farm-related issues.
- The need for agroecological training and the farmer's suggestions in this regard.

In addition to the analysis of attitude (self-assessment of the farmer), we distinguish 4 categories in the case of their knowledge analysis: Agri-environment, Management, Society, and Agroecology. Within the category, 'Society' farmers have been asked what knowledge they consider important in relation to the social aspects of agriculture. They also needed to rate their knowledge in the following areas:

- the role of agriculture in the supply of food, raw materials, and energy
- the role of agriculture in keeping the rural population
- agriculture as an income-generating and supplementing activity
- the role of agriculture in eradicating poverty
- the role of agriculture in the social employment of disadvantaged people, therapy, etc.
- the role of agriculture in tourism, recreation, and education
- the role of agriculture in preserving rural traditions
- the role of agriculture in protecting the natural environment and landscapes
- the role of cooperation in agriculture.

Participants

The participants were selected applying a purposive sampling strategy which is a non-random way of ensuring that particular categories of cases within a sampling universe are represented. It depends on the criteria and knowledge of the researchers' team *a-priori* theoretical understanding of the topic, that the chosen respondents can add an important perspective on the topic in question and their presence in the sample should be ensured (Robinson, 2014). For the current research, in order to have interviews as diverse as possible in terms of the type of Hungarian farms represented in the final sample, 17 different farms were studied as shown in Table 2.

Tab 2. Type and number of farm sampling for the agroecological transition's interviews. Source: own elaboration

Farm	Area	Size*	Type	Production
F1	405 ha	Large	Arable crop producer private farm	Nonorganic
F2	2090 ha	Large	Arable crop producer private farm	Certified organic
F3	50 ha	Small	Arable crop producer private farm	Nonorganic
F4	700 ha	Large	Arable crop producer enterprise	Nonorganic
F5	930 ha	Large	Arable crop producer enterprise	Nonorganic
F6	2500 ha	Large	Horticulture private farm	Nonorganic
F7	0.8 ha	Small	Horticulture private farm	Certified organic
F8	1.2 ha	Small	Horticulture private farm	Organic
F9	25 ha	Large	Horticulture private farm	Nonorganic
F10	6 ha	Small	Horticulture private farm	Nonorganic
F11	5 ha	Small	Horticulture private farm	Nonorganic
F12	3 ha	Small	Horticulture enterprise	Nonorganic
F13	4 ha	Small	Winery	Nonorganic
F14	7 ha	Medium	Winery	Nonorganic
F15	165 ha 120 ewes 12 cattle cows	Large	Animal keeping on a private farm	Nonorganic
F16	330 egg laying birds	Medium	Animal keeping on a private farm	Nonorganic
F17	7500 ha	Large	Mix farm enterprise	Nonorganic

** Based on Farm Accountancy Data Network (FADN) (2013).*

The agricultural area of the examined farms varied between 0.25 ha and 7500 ha. Most examined farms were small farms, but medium- and large-scale farms were also represented. Some farms were officially recognized as organic farms.

Process

The agroecological analysis was performed using the information obtained from 17 in-depth interviews with Hungarian farmers, identifying indicators that fit the basic 10 elements of agroecology described by FAO (2018), with special regard to social elements of the responses.

Accordingly, the study identified:

- The number of identifiable indicators by AE basic elements that are present in the farmers' daily practice. The aim of this is to understand, on the one hand, which basic element-related practices are present and/or preferred in the future (including social farming as a practice), and, on the other hand, to determine which areas need to be strengthened through education.
- The number of selected indicators relevant to social farming directly or indirectly to identify the potential of hosting social farming initiatives.
- Number of indicators per farm in order to outline the training topics required by farmers. In addition, the farms with the highest incidence of indicators, including social interactions and high level of awareness, are also identified. These farms can later act as reference farms, serve as sites for future research, and be the target for study trips.

4. Results

The starting point of the study was the set of indicators related to the FAO AE elements and developed on the basis of the farmers' interviews (Table 3). The selected indicators relevant to social farming directly (e.g., Social farming services – Inclusion of youth, women, elderly, Roma, disable people) or indirectly (e.g., Farmer to farmer knowledge exchange) are indicated in bold.

Tab 3. Indicators matched to FAO AE elements. Source: own elaboration (2021)

FAO AE elements	Identified indicators
Diversity	✓Biological diversification in the farm, ✓Diverse agricultural production and processing, ✓Biological soil life stimulation (no plowing, green manure usage, green fallowing, soil loosening), ✓Mechanical weed control, ✓Crop rotation, ✓Farming practices ensuring the preservation of ecosystems.
Co-creating and Sharing of Knowledge	✓High level of professional knowledge, **✓Infrastructure for knowledge-sharing activities,** **✓Awareness of social aspects of agriculture,** **✓Willingness to acquire knowledge,** **✓Willingness to transfer knowledge,** **✓Farmer to farmer knowledge exchange,** **✓In-farm learning activities.**
Synergies	✓Biological pest control, ✓Ecosystem services (pollination, pond), ✓Landscape followed pattern for farm building, ✓Animal-crop production benefits.
Efficiency	✓Self-sufficiency about the needs for production, ✓Mulching methods at field, ✓Water management techniques, ✓Regular soil monitoring.

FAO AE elements	Identified indicators
Recycling	✓Residue management, ✓Manure usage at field, ✓Compost usage at field.
Resilience	✓Self-sustain farm (without state support), ✓Zero antibiotics, hormones and additives in animal husbandry, ✓Free range system (poultry), ✓Non-dependency on chemical pesticides and mineral fertilisers, ✓Use of locally adapted seed varieties, ✓Use of sustainable agricultural practices, ✓Adapting agricultural practices to the change of climate conditions, ✓Production of own seeds
Human and Social Values	**✓Social farming services (Inclusion of youth, women, elderly, Roma, disable people),** **✓Good relationship and cooperation with local community,** **✓Good relationship and cooperation with other farmers,** **✓Good communication and friendly relationship with the employees.**
Culture and Eating Habits	**✓In-farm socio-cultural activities,** **✓Participating in local gastronomic event,** ✓Organising local events.
Responsible Governance	**✓Participation in farmer's networks,** **✓Participation in national and international movements,** ✓Active leadership for community development, **✓Community-owned farming model,** **✓Collective decision making,** ✓Participation in agro-environmental scheme.
Circular and Solidarity Economy	✓Product diversification, **✓Local, direct market schemes (CSA, Farmer's market),** ✓Adaptation to market needs (high value, organic).

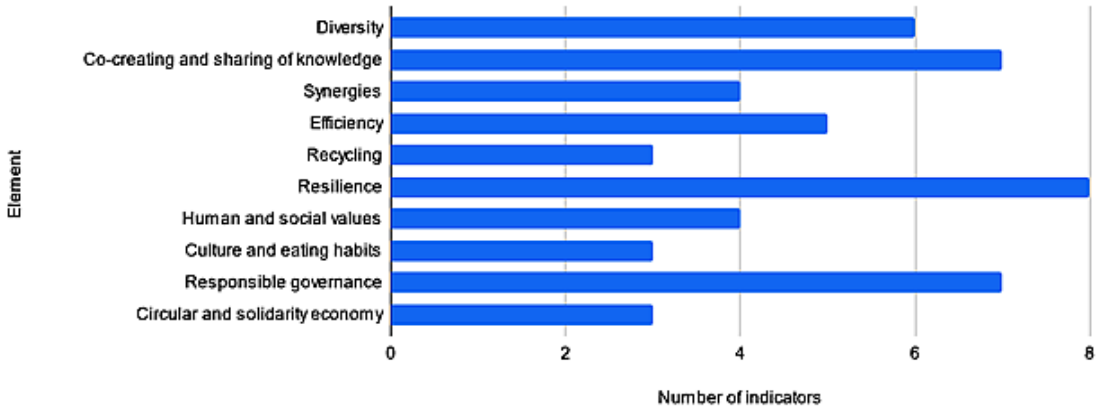
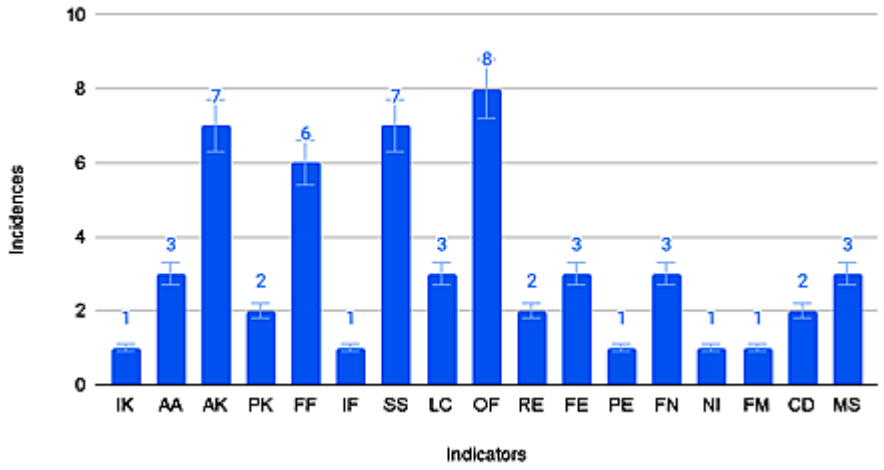


Fig 1. Number of indicators assigned to FAO 10 agroecological elements. Source: own elaboration (2021)

Figure 1 shows the number of indicators related to the FAO 10 agroecological elements determined from interviews, while figure 2 gives an overview of the number of identified indicators relevant to social farming.



Code	Indicator
IK	Infrastructure for knowledge-sharing activities
AA	Awareness of social aspects of agriculture
AK	Willingness to acquire knowledge
PK	Willingness to pass on knowledge
FF	Farmer to farmer knowledge exchange
IF	In-farm learning activities
SS	Social farming services (Inclusion of youth, women, elderly, Roma, disable people)
LC	Good relationship and cooperation with local community
OF	Good relationship and cooperation with other farmers
RE	Good communication and friendly relationship with the employees
FE	In-farm socio-cultural activities
PE	Participating in local food events
FN	Participation in farmer's networks
NI	Participation in national and international movements
FM	Community-owned farming model
CD	Collective decision making
MS	Local, direct market schemes (CSA, Farmer's market)

Fig 2. Number of identified indicators relevant to social farming. Source: own elaboration (2022)

Figure 1 shows that in the case of the 17 examined farms, all agroecological elements could be connected to indicators. Most of the indicators are related to the 'resilience' AE element, as farmers consider production-linked and economically viable practical solutions to be important. Relevant elements for social farming (Co-creating and Sharing Knowledge, Human and Social Values, Culture and Eating Habits,

Circular and Solidarity Economy) are considered also important by the farmers. In Figure 2, it can be seen that among the indicators "Willingness to acquire knowledge", indicator was represented in 7 farms and "Farmer to farmer knowledge exchange" indicator was mentioned by the farmers in 6 farms. "Awareness of social aspects of agriculture" indicator was shown in 3 farms (they acknowledge the importance of social elements of farming). The lowest incidence (1 farm) was for "Infrastructure for knowledge-sharing activities" and "In-farm learning activities" indicators.

In relation to the *Human and Social Values* Element, the indicators of "Good relationship and cooperation with local farmers" (8 farms) proved to be the most common, while interviewees recognized the importance of social farming services and put in practice in the case of 7 farms. The incidence of "Good relationship and cooperation with the local community" and "Good communication and friendly relationship with the employees" indicators was lower – in 3 and 2 farms, respectively. Hence not all the farmers consider "communication and friendly relationship with employers" important aspects of the social elements of their farms.

In terms of *Culture and Eating Habits* Element, the "Socio-cultural activities on the farm" indicator was observed in 3 farms, while the "Participating in local food events indicator" occurred in only 1 farm. This low incidence can be connected to the above mentioned indicators related to "cooperation with the local community".

A significant variance also appeared in the case of indicators in relation to the *Good Governance* Element – the "Participation in the farmers' networks" indicator occurred in 3 farms, the "Collective Decision Making" indicator was detected in 2 farms, however the "Community-owned farming model" indicator was shown in 1 farm.

Concerning the *Circular and Solidarity Economy* Element, the "Local, direct market schemes (CSA, Farmer's market)" indicator was displayed for 3 farms.

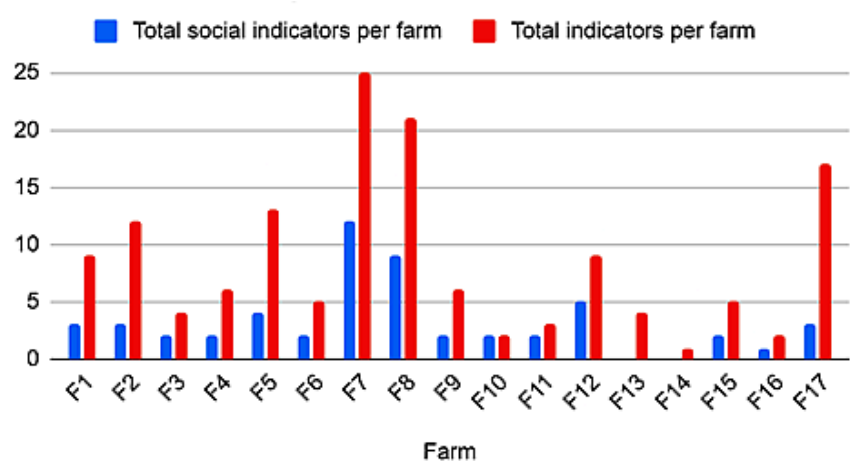


Fig 3. Social indicator appearance in agroecological indicators. Source: own elaboration (2021)

Figure 3 shows the comparison between the incidence of all the indicators of agroecology and the incidence of the social indicators relevant to social farming.

The highest value in both respects (25 agroecological indicators, of which 12 social indicators) was achieved by the F7 private horticultural farm. 21 agroecological indicators, of which 9 social indicators, were met by the F8 horticultural farm. In the mixed farm F17, 17 agroecological indicators occurred, of which only 3 were social indicators. In the F12, also a horticultural farm, although the number of all agroecological indicators was 9, 5 of them were socially related. As shown on figure 3, farms 7, 8 and 12 have the highest number of social indicators, in addition, the three farms are horticultural, small sized (less than 3 ha) and both of them (F7 and F8) are organic.

5. Conclusion and Discussion

The aim of the research was to map the possibility of the spread and development of social farming initiatives in Hungary within the framework and value system of the increasingly known agroecology. The existing practices of farmers were examined, however, the main focus was to assess their knowledge, attitude and willingness to apply social farming (if there are appropriate conditions such as state funding, tender opportunities, adequate human resources). As the agroecology transition is not only targeted at organic farmers (where the basic principles already set out a conscious social attitude), the awareness and positive attitude of farmers towards strengthening the social elements of farming and the motivation for alternative, multifunctional farming can also serve as a starting point for the development of the social farming program.

Based on the results of this research, it can be stated that in the case of the 17 examined farms, all agroecological elements could be connected to indicators. Most of the indicators are related to Resilience, as farmers consider production-linked and economically viable practical solutions to be important. Among the elements relevant to social farming, a considerable number of indicators could be linked to Co-creating and Sharing Knowledge and to Responsible Governance. The existence and willingness of community development and cooperation are the basic elements of social farming, therefore, it is not a negligible fact that farmers act jointly and are ready for further cooperation (Di Iacovo, 2014). The element of Human and Social Values, which is perhaps best associated with social farming, appeared in the value system of farmers but with less emphasis (7 farmers considered it important out of 17). Nevertheless, calculated indicators proved that many farmers consider the social elements of agriculture to be important, the most incidence of detected indicators could be linked to a Circular and Solidarity Economy and the Co-creating and Sharing of Knowledge. Translating this result into practice, it can be stated that farmers are strongly willing to expand and transfer their professional knowledge preferring the methodology of learning from another credible farmer, preferably during farm visits (Grubbström & Joosse 2021). One of the aims of the Social Farm Network operated by the Hungarian Alliance of Social Farms (founded in 2016) is to present good practices through common farm visits, to which not only existing social farm operators but also 'conventional' farmers should be invited.

A comparative examination of the indicators, that are relevant for the potential inclusion of social farming, to the indicators related to all AE principles has shown that in addition to the economic viability and conservation of natural resources, the social elements of farming are also important for farmers. The 17 in-depth interviews revealed that, with 3 exceptions, these indicators are present in one-third and one-half proportion of their farming, or are part of their vision. Certainly, in the case of 'the already existing social farms' a bigger proportion of social-related indicators could be expected, since in the case of 'conventional/traditional' farming the production volume and/or the quality of the produced crop dominates and not the income from social services. Nevertheless, smaller-scale, labour-intensive horticultural farms are great venues for social farming (Neuberger, 2007; Moudrý et al. 2020). The results of our research also confirm this finding as social aspects are already more prominent on these farms. Based on the interviews' results, the farms with the higher number of social indicators are small horticultural farms, with organic practices which are more likely to present the conditions to develop social farming initiatives. However, the attitude is also measurable in the case of those farms that do not identify themselves as social farms, but social indicators are present in their daily practices. Therefore, in addition to their willingness to potentially transition to agroecological systems, they have the basic elements and attitude to adopt social farming practices.

Moreover, practice-oriented training is of paramount importance for agroecology, as farmers do not always see a link between their activities and local development, social local benefits and local cooperation and networking, but are positive about making agriculture more sustainable and increasingly become more aware of the social and environmental consequences of their farming practices. The trAEce project aims to reinforce this recognition by presenting the topic of social benefits as a unique module in its vocational training designed for those farmers who are interested in agroecology. The transition to agroecology should also be encouraged in the form of subsidies, which, analysed by the attitude of farmers, may have a positive effect on the spread and development of Hungarian social farms.

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