

Abstract: The definition and understanding of the social farming (social agriculture) concept varies from country to country, depending on the specific conditions for its development. The contribution provides a systematic literature review of its definition and context. Scientific publications (134), which deal with the topic of social agriculture in different contexts within different geographical areas, and with different intensity over time, have been analysed. Special attention was paid to case studies. Most of the case studies dealt with Italy, The Netherlands, The United Kingdom and Norway. More than a third of the outputs address the issue of health effects of social farming. Social benefits are the second most frequent topic. Moreover, educational, environmental and economic effects of social agriculture are discussed in the analysed publications with a similar intensity. Green care (social agriculture) farms are significant players in rural development, and work and social inclusion, and can instantly and innovatively react to the local needs.

Keywords: green care, green care farming, social farming, social agriculture, literature review, cluster analysis

Abstrakt: Definícia a chápanie pojmu sociálne poľnohospodárstvo sa v jednotlivých krajinách líši v závislosti od konkrétnych podmienok jeho rozvoja. Príspevok poskytuje systematický prehľad literatúry o jeho definícii a kontexte. Boli analyzované vedecké publikácie (134), ktoré sa téme sociálneho poľnohospodárstva venujú v rôznych kontextoch v rôznych geografických oblastiach a s rôznou intenzitou v čase. Osobitná pozornosť bola venovaná prípadovým štúdiám. Väčšina prípadových štúdií sa zaoberá prípadmi z Talianska, Holandska, Spojeného kráľovstva a Nórska. Viac ako tretina výstupov je venovaná problematike zdravotných efektov sociálneho poľnohospodárstva. Druhou najfrekvencovanejšou témou sú sociálne prínosy. S podobnou intenzitou sú v analyzovaných publikáciách analyzované vzdelávacie, environmentálne a ekonomické efekty. Farmy zelenej starostlivosti (sociálne farmy) sú významnými aktérmi rozvoja vidieka a pracovného a sociálneho začlenenia a môžu okamžite a inovatívne reagovať na miestne potreby.

Kľúčové slová: zelená starostlivosť, farmárstvo zamerané na zelenú starostlivosť, sociálne farmárstvo, sociálne poľnohospodárstvo, prehľad literatúry, klastrová analýza

Highlights:

- Scientific literature sources on social farming were analysed.
- The analysis was focused on topics, target groups, localization and time.
- The concept of social farming varies from country to country.
- Green care farms are significant players in rural development.

1. Introduction

The term 'social farming' (SF, 'social agriculture' – SA) has been used frequently in professional literature since the end of the twentieth century. The definition and understanding of this concept vary from country to country, depending on the specific conditions for its development. The main initiatives aimed at defining social agriculture in the EU were the Cost Action 866 – Green Care – European Cooperation in Science and Technology projects and the follow-up activities of The European Economic and Social Committee.

1.1 Delimitation and definition of the social farming concept

In a broader definition, social farming can be defined as *a set of activities that use agricultural resources, whether plant or animal, to create social services in rural or peri-urban areas, such as rehabilitation, therapy, sheltered employment, lifelong learning and other activities that contribute to social integration* (Gallis, ed., 2007; The European Economic and Social Committee, 2013) or as a form of sustainable agriculture to enable recreation and provision of social, health, therapeutic and educational services or social inclusion (Knapik, 2018). Social farming is an innovative approach that interconnects multifunctional agriculture and social or health services at the local level (Di Iacovo et al., 2016; Hine et al., 2008; Haubenhofer et al., 2010; Loryente et al., 2016; Elsen & Fazzi, 2021 and 2021; Tulla et al., 2014; Guirado et al., 2017; Hassink et al., 2016). At the same time, the authors emphasize the broad-scale positive effects brought by this combination of concepts to different groups of people. Haubenhofer et al. (2010) argue that it is a *movement that provides health (mental and physical), social or educational benefits to a wide range of people through agriculture*, while emphasizing the importance of partnerships between farmers, health and social care providers, and clients.

Tab 1. Overview of social farming definitions. Source: own

'... a retro-innovative solution that supports the multifunctional use of agricultural resources (plants, animals, farms and relationships) to strengthen and improve health and social protection networks in both rural and urban areas.'	(Di Iacovo et al., 2016)
'... the use of commercial farms and agricultural land as a basis for the promotion of mental and physical health through normal agricultural activity.'	(Hine et al., 2008), (Haubenhofer et al., 2010)
'... an umbrella term encompassing all activities that use agriculture and rural resources to produce not only food but also social services.' '... a nature-based solution that can connect human well-being with the natural landscape and provide rural sustainability through the multiple benefits of ecosystem services.'	(Loryente et al., 2016)
'... a social innovation process that mobilizes resources – from agricultural and rural areas – to respond to local social needs that the state and the market are unable to meet.'	(Elsen, 2019), (Elsen & Fazzi, 2021)
'... agriculture, which, in addition to its primary function of food production, involves the provision of secondary services from which the community may benefit, such as social services or job placement for disadvantaged people.'	(De Bruin et al., 2010; Haubenhofer et al., 2010; Elsen & Fazzi, 2021)
'... a set of practices that innovate the traditional concept of agriculture by establishing a close link with the innovation of social services.'	(Hassink & Van Dijk, 2006).
'... an activity which gives agricultural practices a new meaning which goes beyond the productive aspect and provides a social function primarily intended for groups at risk of exclusion.' '... the creation of health and social services and the processing and marketing of quality value-added food products, achieved with social justice and environmental sustainability.'	(Guirado et al., 2017)
'... the process of integrating and empowering groups at risk of social exclusion through their participation in agricultural activities and food processing. Integration shall include job creation or training, together with therapeutic measures where necessary.'	(Tulla et al., 2014)

Different types of services are activated through social farming practices to meet the needs of a large number of disadvantaged participants. In addition, educational activities focused on environment and food can be organized for schools and families, and provide new forms of rural social housing for disadvantaged people in combination with forms of ecological and adventure tourism for those looking

for alternative life models. At the same time, social farming activities represent an additional source of income in agriculture, and a factor of potential local development (Elsen & Fazzi, 2021). An overview of definitions by various authors is provided in Table 1.

Based on a summary of different approaches, Guirado et al. (2017) see the social agriculture as a body of experience that uses local agricultural and (or) natural resources to improve and promote health, educational, social and labour inclusion, and empower groups at risk of exclusion. It is intended for people with specific work needs (e.g., people with disabilities, the long-term unemployed, people living in poverty or after imprisonment) who need therapy or rehabilitation (e.g., people with addictions, female victims of violence, people with mental disorders or post-traumatic stress disorder), and children with special learning needs. Di Iacovo et al. (2013) and Hudcová et al. (2018) examined the impact on territorial development. They state that social farming activities support the improvement of the quality of life of the population, and contribute to the creation of new local development strategies, connection of agriculture and social care, and creation of new models of providing social and other personal services in rural areas. According to the authors, it also supports protection of nature, preservation of diversity and human-nature relationship, and local, ecological, high-quality, sustainable and socially fair agriculture. Its value lies also in the transfer of the traditional farm economy to further generations.

1.2 Different terminology

We have come across other terms that fully or partially replace the term of social farming (SF) in the works of authors who deal with this concept. The term 'green care' (GC) is a broader term, and it is often used as a synonym. Other synonyms are: 'green care in agriculture' (GCA) or 'care farming' (CF), currently also 'connective farming'. There is no consensus on distinguishing boundaries. Different terms are used in different geographical conditions, which reflect the historical conditions of the agricultural development and land management, different economic and social situation in the country, ways of providing social and health care, as well as the relatedness of the language used. Guirado et al. (2017) stated that there are clear links between the terms of CF, GCA and SF, which explains why these terms are interchanged. According to Dessein et al. (2013), a broad conceptual framework of practices that combine agricultural work with the provision of health and social services is generally in line with the GCA, while SF and CF concepts and others, such as 'farming for health', are used to describe complexity and territorial specificities of the phenomenon. In this sense, the GCA is considered a conceptual umbrella that contains and accepts variations on terminology that are 'more than semantic' because they indicate 'representation and organization of different practices' (Dessein et al., 2013). Nevertheless, Leck et al. (2014) pointed out that different terms referred to the same phenomenon and were terminological adjustments of certain territorial contexts. Dessein et al. (2013) added that GCA can therefore mean different things in different countries. It can target different social groups (older people, mentally handicapped people, ex-prisoners, young people etc.), different agricultural contexts (intensive and extensive agriculture, different sectors, professional farms or institutional farms, hospital gardens) and has different objectives (therapy, prevention health care, rehabilitation). This diversity within the GCA is also reflected in the consideration of the various overarching concepts used to describe the GCA phenomena (such as GC, social farming, care farming or farming for health), and related farm types (such as institutional farm, care farm, ordinary farm, Werkstätte or social cooperative).

In Northern Europe, the term of green care (GC) is used for initiatives with the same objective as SF most commonly: empowerment through agricultural activities. However, unlike SFs, GC initiatives favour the therapeutic use of natural elements (plants, animals, landscape), and this creates a client relationship between GC managers and members of groups at risk of social exclusion (Leck et al., 2014; Bragg and Leck, 2017). There are differences between countries in the use of different forms of therapy within the GC and also in the intensity of links to agricultural activities. Haubenhöfer et al. (2010) report on the interrelationships of GC, social and therapeutic horticulture and green exercise as treatment in the UK primarily, and on animal-assisted intervention (AAI) in Finland, Norway and partly in Germany and Austria, and on wide and developed application of therapies in links to agriculture in the Netherlands and Belgium.

In Norway and Italy, the GC is strongly linked to agriculture, which has been related to the provision of health care in particular.

Tab 2. Comparison of the main concepts. Source: own

Green care (GC)	Green care in agriculture (GCA)	Care farming (CF)
'combines aspects of traditional health care systems with agriculture, horticulture, landscape or nature protection (ecotherapy), animal husbandry. Green care creates a link between sectors that were not previously interconnected and therefore creates new benefits for all sectors involved' (Haubehofer et al., 2010)	'the use of agricultural farms – animals, plants, gardens, forests and landscapes – as a basis for promoting human mental and physical health as well as quality of life for different client groups' (Braastad et al., 2007; Dessein & Bock, 2010)	'therapeutic use of farming practices...' (Hemingway et al., 2016)
'provides an interesting context for multifunctional agriculture, where farmers face the challenge of bridging the gap between agriculture and health and gaining new customers, partners and financial resources from the care sector' (Hassink et al., 2016)	'GCA development is one of those rural development processes that is essentially about revitalizing and strengthening rural areas. The aim of rural development is to change the view of the wider society on the countryside as a more attractive, accessible, valuable and useful space for society as a whole.' (Van der Ploeg & Marsden, 2008)	'a win-win situation for agriculture and health care' (Overview of Social Farming and Rural Development Policy in Selected EU Member States, European Communities, 2010; Vik & Farstad, 2009). In multifunctional agriculture, care farming appears to be an expanding activity that can increase farmers' income flows, help restore relations between agriculture and society and support rural development' (Van der Ploeg & Roep, 2003). 'from the perspective of care socialization, CF is a concrete example of empowerment-oriented practice that focuses on social integration' (Hassink et al., 2010)
'GC procedures aim to support the rehabilitation of disadvantaged people, education and care and / or the integration of people with "low contract capacity", but also procedures that support services in rural areas for specific target groups such as children and the elderly' (Di Iacovo, 2009).	'includes activities that use agricultural resources to promote health, create activities and therapeutic services and provide rehabilitation, inclusion, education and training and employment, especially in rural and peri-urban areas.' (Di Iacovo & O'Connor, 2009)	'is essentially seen as social innovation – a set of new strategies, concepts and organizations that meet social needs and strengthen civil society, which is locally linked to the plans and practices of farmers or small groups of local stakeholders' (Di Iacovo & O'Connor, 2009)
'an umbrella term for a wide range of health interventions that use biotic and abiotic elements of nature to maintain or promote human social, physical, mental and educational well-being' (Haubehofer et al., 2010)	'GCA can be defined as the use of conventional farms and agricultural land to promote physical and mental well-being (Hassink, 2003; Hassink & Van Dijk, 2006; Hine et al., 2008) that offer important benefits through agricultural activity – not only health promotion but also social, employment and educational benefits – for people at risk of exclusion' (Sempik, 2010)	'CF can be institutionalized in various arrangements e.g., market as in the Netherlands or voluntary as in Italy' (Van der Ploeg & Roep, 2003; Di Iacovo, 2003) and in various combinations of care and farming (e.g., the integration of agricultural practices in health facilities such as Austria and Germany, Bock & Oosting, 2010).
'GC includes a wide range of activities and practices that share natural elements to maintain and promote physical, mental and social well-being' (Haubehofer et al., 2010, Sempik, 2010)		'the use of conventional commercial farms and agricultural land as a basis for promoting physical and mental health (Hine et al., 2008). The goals are mainly therapeutic, but may also cover other areas such as education, occupational therapy or social integration' (Hassink & Van Dijk, 2006).

Haubenhofer et al. (2010) added that GC is usually associated with the natural environment, but does not necessarily take place in it. Individual operations can also take place in hospitals, nursing homes or even prisons. It follows that GC may or may not be linked to agriculture.

The fundamental difference between SF, GCA and CF is that the last two terms favour health promotion through therapeutic approaches (Hassink & Van Dijk, 2006). Providing on-farm care is one of the elements that define the nature of these activities. GCA and CF are characterized by the arrangement of services in particular paid by the beneficiaries (called 'clients' or 'patients'), depending on the regulations of each country and each individual's situation, to provide social care over a period of time to improve the situation of the people involved through therapeutic intervention (Sempik, 2010; Dessein et al., 2013; Leck et al., 2014). In contrast, SF is a sector of the social economy that focuses mainly on social and labour integration, social inclusion, and commercial production of quality food in order to create economically viable business projects through product marketing and public funding, and to support the social role of these projects (Guirado et al., 2017).

1.3 History of social farming

Social farming initiatives have been evident on a small number of farms in Western Europe, North America and Asia for many years – whether formal or informal (Haubenhofer et al., 2010). Di Iacovo & O'Connor (2009) stated that a new concept of social farming was introduced in the Western European countryside as early as in the 1960s. It was created as an initiative of farmers, whose goal was to develop local space and integrate broad social strata into agricultural production. The emergence and development of social agriculture was also supported by structural socio-economic changes in rural areas related to the shift from the production orientation (Bowler, 1985), especially later, in the 1980s. Development and specific application of the concept of SA are different in each European country – they take a different culture, history, structure of its social and health care, education system, etc. into account. In Italy, social cooperatives focusing on agriculture emerged after the abolition of psychiatric hospitals in the 1980s, and the expropriation of agricultural land of criminals contributed to this (Di Iacovo & O'Connor, 2009). The first social institutions were established in Germany as early as the end of the 19th century, and with small agricultural units to supply their own kitchens. They were used to help people in need. These institutions naturally linked the integration of people dependent on social care to their work – a work therapy. With globalization of the agricultural commodity market in the 1960s, food prices fell and many economies were closed down or transformed into sheltered workshops. Later in the 80–90s, the situation changed. Environmental awareness of people increased, which had an impact on the promotion of organic farming and the restoration of the original farms. In the Netherlands, Ireland and the United Kingdom, many SA pioneers were inspired by Rudolf Steiner's anthroposophy and Christian principles (Hine et al., 2008). In Slovenia, most SA projects started in 1990s and were inspired by an innovative combination of social services and agricultural activity. The beginnings of SA in France and Flanders are linked to the desire to help people, and to the need to express social solidarity (Di Iacovo & O'Connor, 2009).

Social farming initiatives are developing based on a similar model, i.e., they undergo similar stages of development. They start the so-called pioneering phase, in which social agriculture is linked to volunteering and strong motivation of farmers. Private farms create their own projects and farmers enter the system based on their feeling of solidarity. At this initial level, farmers can count on little response and recognition from society. Multifunctional agriculture is the next stage. At this stage, the profile of social agriculture is evolving, but there is still lack of significant systemic support from public sources to provide social and health services. Interest comes mainly from farmers, local private and public institutions. The final development stage of SA represents an inclusive model, which means the existence of a large number of initiatives is recognized by public institutions and society. Farmers are organized in regional and national networks, and agriculture, social and health systems are interconnected (Di Iacovo & O'Connor, 2009).

1.4 Types of social agriculture farms

Various types of social farms have been developed since the end of the 20th century. With regard to the purpose, they fulfil, and a group of beneficiaries (target group) can be divided into the following categories:

- a) Farms focused on care, rehabilitation and therapeutic activities,
- b) Farms focusing on labour integration and social inclusion,
- c) Farms focused on education and pedagogical activities, and personal support services (Knapik, 2018; Di Iacovo & O'Connor, 2009).

The first type represents farms providing clients with social and health services, for which farmers usually receive compensation from the state, and the services are implemented in accordance with the state's health, social or agricultural policy (the Netherlands, Flanders, Germany, Ireland, France and Italy). Most farms also provide vocational education, training and individual support.

The aim of the second group of farms is the integration of the workforce, which is marginalized in the labour market. They are usually linked to training opportunities for disadvantaged groups. Their activities are funded directly or indirectly by the public sector under social or employment policy, etc. However, the operating costs of the farm are covered only partially and therefore agricultural production and marketing are needed.

The third group of farms provide educational and pedagogical activities in two different forms. One focuses on primary school children by demonstrating farm life, healthy eating and lifestyle, and relationship with nature. This includes short-term visits of children to the farm during the year. The second type offers special educational activities for children with learning disabilities, for those who have problems with the law, social inclusion, and for people with family problems and people in foster care.

Several authors (O'Connor et al., 2010; Knapik, 2018; Di Iacovo & O'Connor, 2009) use also other criteria to classify social farms: legal form and sector of the provider (third sector, private sector, public sector), type of organization (family businesses, community-oriented, professional or service-based businesses), and cooperation (individual care farms, regional social farm associations, social care institutions cooperating at the local level with social farm associations), and sources and method of financing, target group users or the dominant function of a social farm (for agricultural production or the provision of social services).

2. Methodology

The presented work is focused on a systematic quantitative literature review (SQLR) of social agriculture (social farming). Paré et al. (2015) categorized stand-alone literature reviews by the purpose of four categories: descriptive, testing, extending, and critique. The purpose of this review is to describe the body of scientific publications. A descriptive review examines the state of the literature as it pertains to a specific research question, topical area, or concept (Xiao & Watson, 2019). This descriptive review is organised as a textual narrative synthesis. Textual narrative synthesis is characterized by having a standard data extraction format by which various study characteristics (quality, findings, context, etc.) can be taken from each piece of literature (Xiao & Watson, 2019).

The aim was to identify, analyse and synthesize previous studies (Rosalina, Dupre & Wang, 2021; Pickering & Byrne, 2014; Petticrew & Roberts, 2008). The review was conducted in eight steps: formulating the research problem; developing and validating the review protocol; searching the literature; screening the literature for inclusion; assessing quality; extracting data; analyzing and synthesizing data; and reporting the findings (Xiao & Watson, 2019). The process was iterative and it resulted in a logical arrangement of outputs in a new structure, which provided a comprehensive view of the social agriculture concept at the same time.

2.1 Research stages

In the first stage, we identified keywords that are relevant to the research topic as well as to the research questions. Keywords were searched in various professional databases to increase complexity and support triangulation of results (Pickering & Byrne, 2014). After examining the opinions of the authors and their published works dealing with the issue of social agriculture, we decided to search for the terms 'green care', 'green care farming', and 'social agriculture'. The highest incidence of these terms occurred in the scientific databases Science Direct, Springer Link and Web of Science. These three databases were used to select articles for further analysis.

The following research questions were formulated:

- What topics do the authors (scientists) explore in the context of the development of social agriculture? Are some of the topics preferred more than the others?
- What target groups of clients of social farming do the authors focus on?
- Is the interest of authors in the topic of social agriculture growing? Do some topics resonate more intensively in terms of the period under review?
- Are some of the countries, in which the concept of social agriculture (farming) develops, more intensively oriented at the selected topics or the target groups than the others?

In the next phase of the research, we created a database structure that takes the selection criteria and analytical categories, according to which we sorted the outputs, into account. The main classification criteria were: the thematic focus of the output, target groups of the SA on which the output is primarily focused, type of publication, and geographical area (of the case study) in which the study took place, year and source of publication.

In the third stage of the research, we prepared the database for the analysis. We also used the hierarchical cluster analysis for sorting and processing the data (especially for discovering the common features of the published outputs). The aim of the cluster analysis is to decompose a set of objects into several relatively homogeneous subsets so that the objects belonging to the same cluster are as similar as possible (Speece, 1994). Only the publications classified as case studies within the previous process ($n = 104$) were included in the analysis. Since the data are mostly categorical, the distance matrix was calculated using Gower distance that measures the dissimilarity of two items with mixed numeric and non-numeric data (Wang et al., 2021). The data were categorized based on the thematic focus of the output (11 levels), target groups (10 levels), geographical area (29 levels), publication type (8 levels), source (64 levels) and year (2006–2021). Different hierarchical clustering techniques were tested. The complete linkages method was selected as the most suitable one, leading to a more balanced number of items in each cluster. In order to select the number of the extracted clusters, we used the silhouette width metric. The analysis was carried out using R cluster package (Maechler, et al., 2022).

2.2 Retrieval and selection strategy

The search for relevant scientific outputs for the literature review was performed by entering the terms 'green care', 'green care farming', and 'social agriculture' as key phrases in the three selected databases (Direct Science, Springer Link and Web of Science) in the period of September to November 2021. The selection of publications was performed exclusively from the outputs published online and in English. We identified 674 outputs, which we subjected to a more detailed analysis. From the identified outputs, we excluded 51 duplicates and 489 articles, the content of which was outside the context of the researched area of social agriculture or concerned the context only marginally and addressed other issues as the priority (e.g., natural environment and its impact on the treatment processes, well-being and health of the population, conservation of natural resources and urban development or agriculture in general). We did not take the contributions that were not available in full text into account. We identified 134 scientific outputs that satisfied the inclusion criteria and were published in the period 2006–2021. These publications, which deal with the topic of social agriculture in different contexts, within different geographical areas and with different intensity over time, have been analysed. As for the type of

publication, most of them were research articles (99), book chapters (16) and review articles (13). Figure 1 illustrates the process.

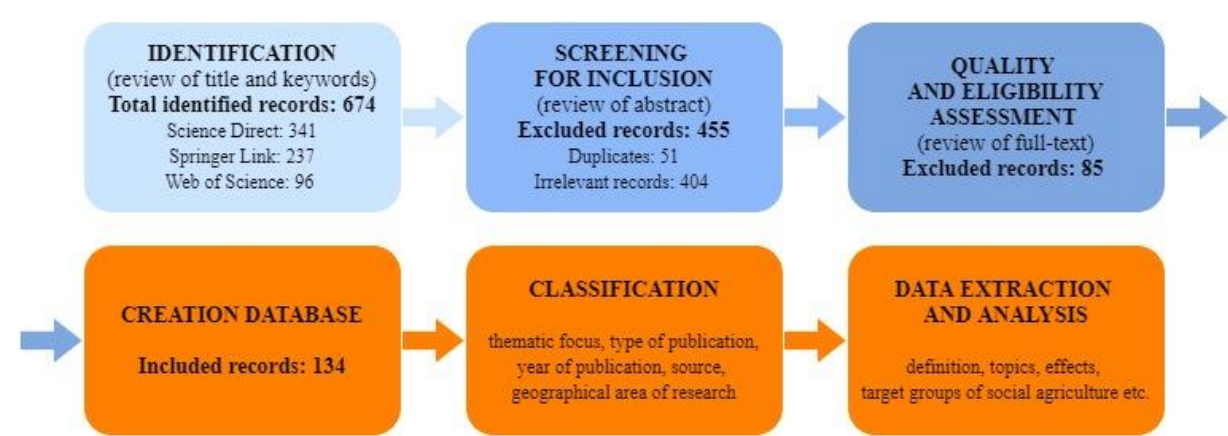


Fig 1. Process of selecting and processing the outputs. Source: own processing

The analysis was carried out by identifying key findings of the outputs in terms of research questions. Our goal was to identify the characteristics sought from the content of the published outputs. Relevant data were coded using a series of qualitative codes, and categorized according to the potential topics. During the data processing, the topics were further specified and supplemented.

2.3 Limitations

We realize that the selection of online outputs exclusively could cause certain limitations in our research. Similarly, this caused incomplete outputs, too, which we excluded from the analysis, due to the fact that it was not possible to get details and check their relevance. However, we assume that the most scientific journals currently publish electronic editions, and it is therefore unlikely that such a restriction would significantly influence our research.

3. Results

The research resulted in the synthetic report on definition, contexts of identified scientific outputs, geographical coverage, and intensity of publication over time. Thematic focus and its development in time were also analysed. Case studies were analysed also in terms of localization, topics and target groups. Definition of the concept as a research result is provided in the chapter 1.1 and Table 1.

3.1 Thematic focus

In terms of the thematic focus of the published works, we have identified 10 priority topics that are closely linked to the study of social agriculture (Table 3). Many of the selected topics overlap within the content and can be found in several publications.

The authors deal with the definition of the term of social agriculture in a narrower or broader context, and within geographical, historical and cultural differences, as well as with the positive effects that are associated with social agriculture.

Tab 3. Topics of scientific publications focused on social farming. Source: own processing

Topic	Share of all publications (%)	Selected authors
Definition of social farming (SF)	4.5	Haubenhof et al. (2010), Fjeldavli (2006), Leck et al. (2014), Guirado et al. (2017), Kwame Ameade et al.(2021)
Therapeutic/health effects of SA	36.6	Stock & Brickell (2013), Gallis (2013), Gagliardi & Piccinini (2019), Verbeek et al. (2011), Berget et al. (2008), Berget & Grepperud (2011), Johannessen et al. (2019), Loue et al. (2014), Vujcic et al. (2017), Masterton et al. (2021), Cacciatore et al. (2020), Hlušíčková & Gardiánová (2014), Gorman & Cacciatore (2017), Lakhani et al. (2019), Cutcliffe & Travale (2016), Jenkins et al. (2021), Lee et al. (2020), De Boer et al. (2015), Farstad et al. (2021), Torquati et al. (2019b), Sisman et al. (2020), Gorman & Cacciatore (2020), Rotheram et al. (2017), Kaley et al. (2019), Davies et al. (2020), Hemingway et al. (2016), De Bruin et al. (2017), Motealleh et al. (2019)
Social effects of SA	27.6	Moriggi (2020), De Boer et al. (2017b), Kogstad et al. (2014), Seifert (2014), Lund et al. (2015), Giarè et al. (2020), Verbeek et al. (2021), Harris (2017), Mmako et al. (2020), Scartazza et al.(2020), Hassink et al.(2019), Buist et al. (2018)
Educational effects of SA	9.7	Moriggi et al. (2020), Balázs et al. (2020), Berget et al. (2008), Torquati et al. (2015), Fazzi (2011), Fazzi & Elsen (2020), Kraftl (2014), García-Llorente et al. (2016)
Environmental effects of SA	8.2	Pálsdóttir et al. (2018), Pistors et al. (2019), Murray et al. (2019), García-Llorente et al. (2016), Van Elsen et al. (2006)
Economic effects of SA	6.7	Tulla et al. (2020), Elsey et al. (2014), Tempesta et al. (2019), Torquati et al. (2019a), Bassi et al. (2016), Heringa et al. (2013)
SA and multifunctional agriculture	20.9	De Krom & Dessein (2013), Dias et al. (2019), Todorova & Ikova (2014), Gurrieri et al. (2014), Meraner et al. (2015), Kristensen et al. (2019), Pölling et al. (2016), Zasada (2011), Bjørkhaug & Richards (2008), Bloksma & Struik (2007), Moruzzo et al. (2020), Fonte & Cucco (2017), Hassink et al. (2016), Hassink et al. (2018)
SA and rural development, social innovation in rural areas	14.2	García-Llorente et al. (2016), Foti et al. (2016), Mastronardi et al. (2020), Baseline et al. (2020), Elsen&Fazzi (2021), Russell et al. (2021)
Cooperation of partners within SA	3.0	Fèche et al. (2021), Foti et al. (2016), Hassink et al. (2019), Galardi et al. (2020)
Support policy to social innovation in rural areas, social policy support for SA	6.0	De Krom & Dessein (2013), Ludvig et al. (2018), Knapik (2018), Chen et al. (2020), Vrontis et al. (2021), Ludvig et al. (2021)
other	15.7	Tulla & Vera (2019), Sellberg et al. (2020), Russo & Cirella (2020), Pirro & Anguelovski (2017), Fletcher & Collins (2020), Besser & Mann (2015), Leck et al. (2014), Loue (2016), Ibsen et al. (2018), De Boer et al. (2017a), De Boer et al. (2018), De Boer et al. (2019), De Boer et al.(2021), De Bruin et al. (2010)

3.2 Benefits of social agriculture and green care

More than a third (49) of the 134 outputs addresses the issue of health effects of care and social farming. Social benefits are also frequent. The educational, environmental and economic effects of SA are discussed in the analysed publications with similar intensity (6.7–9.7%).

Health and therapy

More than 71% of publications dealing with health effects are case studies. Most studies have been conducted in the Netherlands, the United Kingdom, Norway and Italy. Almost half (23) of these outputs deal with both health and social effects. Some of these publications deal with saving public health (clinical and non-clinical populations) more generally, and with mind and body interventions based on nature or green space including therapeutic gardens and farms (Pretty & Barton, 2020; Masterton et al. 2020, etc.).

Specific locations or sites of the healing and therapeutic spaces of care farming were examined by Kaley et al. (2019). Besides the space of farms and gardens, animals and plants as players of the therapy are studied within the nature therapeutic interventions. Animal-assisted interventions were introduced in the 1960s by Boris Levinson, a child psychotherapist (Berget & Grepperud, 2011). These interventions include therapeutic as well as educational and recreational goals. They focus on improving human health and well-being of various groups of patients (psychiatric, neurological, with dementia, physically impaired etc.) by the involvement of domestic animals (Berget et al., 2011; Galardi et al., 2020; Ponzio et al., 2018, etc.).

Plants are used for therapeutic interventions by means of healing trips to natural greenery or gardens, or within the care for ornamental or production plants and crops, and harvesting and processing of their yield. Elings, (2006) studied physiological, psychological and sociological effects of the human-plant interaction on people. Sismanet al. (2020) examined the plant-based therapy and activity in the case of psychiatric diagnoses. Newtonet al. (2021) published a systematic review of garden therapy for people living with dementia.

In most publications, mental health is the objective of green care or farm care (Cutcliffe & Travale, 2016; Masterton et al., 2020; Davies et al., 2020; Masterton et al., 2021; Loue et al., 2014). Stock & Brickell (2013) described Sir Frederic Truby King's practices in New Zealand (in 1889–1922) as a 'genealogical precursor of today's green care and care farming movements'. The publication focused on setting the farming practices, a rural setting, occupational therapy, dietary changes and movement towards self-sufficiency as examples of asylum management practices. Effects of care and social farming and horticultural therapies on people with dementia were examined in several country case studies (De Boer, et al., 2015; Verbeek et al., 2011; Eriksen et al., 2019; Farstad et al., 2021; Newton et al., 2021; Motealleh et al., 2019; Jenkins et al., 2021). Safety of patients is one of the most important aspects in the case of therapy for people with dementia. De Bruin et al., (2017) studied greenery and animal-assisted therapy in adult day services centres, assisted living facilities, nursing homes, hospitals, and other health facilities, where the care was provided 'in protected settings focusing on basic nursing and medical care services aimed at keeping the residents safe'.

Seniors (without or with the signs of dementia) constitute a frequent target group of care farming (Verbeek et al., 2011; Knapik, 2020; Gagliardi & Piccinini, 2019). The latter publication provides a systematic review of senior green care. The authors analysed qualitative and quantitative studies of: horticultural therapy in nursing homes, senior housing residence, adult day services, horticultural therapies devoted to people with dementia, resting in a garden and views on gardens, gardening activities for community-dwelling older people, and green care at agricultural farms. The authors concluded that 'the interaction with nature is highly appreciated by clients, since it provides them with an opportunity to develop connectedness with nature that satisfies physical, psychological and spiritual needs'.

Other green farming and social farming target groups were focused on within the analysed scientific publications: adults with autism (Torquati et al., 2019a), people with traumatic grief (Gorman & Cacciatore, 2017 and 2020; Cacciatore et al., 2020), mothers and children (Lee et al., 2020), and people with cancer fatigue (Johannessen et al., 2019). Improving mental health and social connection in

disadvantaged and hard-to-reach groups was studied by Davies et al. (2020). The Dutch perspective of the post-acute and long-term care crisis in the aftermath of COVID-19 is provided by Spaetgens et al. (2020).

Social effects

The application of the SA concept also contributes to the strengthening of social ties (interactions) on the farm, supports the community way of life of the clients, and ensures the inclusion of socially excluded persons and their participation in activities and social life. The focus of all SA activities is laid on human beings – employees, clients and external stakeholders. They are a key component of the organizational structure of a social enterprise, and are important for its day-to-day operation. In many social enterprises, a part of the work is done on a volunteer basis, while creating a community of people who contribute to the common issue SA thus contributes to the creation of social networks and relationships of various kinds (Moriggi, 2020). Compared to the traditional facilities providing long-term care for the elderly (nursing homes), social farms offer the possibility of active leisure time, create an attractive home environment, and positively affect engagement and social interaction (De Boer et al., 2017b). Social farms are a tool for solving the problems of people with substance abuse, which are dealt with in a form of community-based organizations, and they provide opportunities for socialization and personal development, and mitigate the social and psychological causes of the substance use (Seifert, 2014). SA can be an important complement in helping young people to return to a happy life and meaningful roles in society. Many young people have regained their self-esteem and motivation for further education or work outside green care (Kogstad et al., 2014). Social ties that are developed between the service provider, farmer, clients and employees are also beneficial.

In the context of the SA concept, service providers respond to new challenges, in particular to low predictability and complicated cooperation with authorities and stakeholders. Being a service provider in SA means being not only a farmer but also a person who shapes the therapeutic environment and has the ability to think creatively and innovatively (Lund et al., 2015). The SA service providers have to face two incompatible social worlds quite often. With a more professional provider role, part of the GC's potential is often lost. In the context of the agricultural and natural environment, the SF carries out a series of activities to bring benefits to people at risk of social exclusion, including migrants, refugees and asylum seekers (Giarè et al., 2020).

Measures are implemented both on the inner side (farm) and external side (community and territory), and are carried out through: authentic working environment, working conditions, social activities, relations with the external environment, and different ways of involving people. Therapeutic horticulture for people suffering from mental health problems was studied by Harris (2017) and Scartazza et al. (2020). This target group appreciated the opportunities to make friends, socialize also outside the project, connect people in a similar situation, and interact with the wider local community. Similarly, Mmako et al., (2020) and Hassink et al., (2019) confirm that the SA activities contribute to the social involvement of people with dementia and to reducing the stigma of their isolation. Their quality of life on a social farm is increased through their involvement in meaningful activities, support for the decision-making independence, positive risk-taking and strengthening their identity.

Buist, et al. (2018) found out that the application of the concept requires transformation of not only the physical environment but also the change in the social and organizational environment. Verbeek, et al. (2021) presented the concept of SA as a suitable and innovative solution for providing an inclusive and safe environment for the elderly, people with mental disorders and psychosocial disabilities in relation to the preservation of their fundamental human rights. Using the concept of foster care for children and youth was investigated by Bombach et al. (2015).

The social effects of SA (often together with health, environmental or economic effects) are the second most intensively discussed topic (27.6% of the published outputs) in publications on social agriculture.

Education

Research studies show that the development of SA can support the education of children and adults in the field of sustainability. According to García-Llorente et al. (2016), SA includes formal and informal educational and experiential contexts that cover all topics of sustainability, ecology, biodiversity, traditional agriculture, life on the farm, food and natural resource production, up to environmental and climate awareness in an interactive, participatory, research and active way. It specifically promotes personal skills such as critical thinking, teamwork, solidarity, community cohesion and a sustainable lifestyle. Social agriculture in the context of education is addressed by Moriggi et al. (2020), Balázs et al. (2020), Berget et al. (2008), Torquati et al. (2015), Fazzi & Elsen (2020), and Kraftl (2014). Moriggi et al. (2020) claim that GC is not just about the sequencing of health interventions and is not based on unilateral action, but that it emphasizes the need to view GC as a process based on reciprocity, mutual respect and learning. It is a cycle that represents continuous learning and improvement and has a positive impact not only on the participants but also on the environment. Kraftl (2014) perceived social farms as a form of alternative education for children by learning based on experience. It is a form of non-formal education that aims to involve children and other visitors in the activities. The local community has a significant impact on non-formal education. Torquati et al. (2015) examined the business model of a social farm – kindergarten. The study also addressed the role of public official authorities. The team of Balázs et al. (2020) promoted awareness of the concept of SA by conducting participatory research through scientific cafes. They identified the knowledge needs of various social actors in SA (in Hungary), and current topics for research on SA. Berget et al. (2008) focused on examining the knowledge, experience and attitudes of farmers and psychiatric therapists to SA and animal-assisted therapy for people with psychiatric disorders.

Environmental effects

Studies that highlight the positive environmental aspects of SA are also published. Many practices on social farms are driven by strong environmental ethics and can have beneficial effects on the ecosystem and the conservation of biodiversity, too. García-Llorente et al. (2016) stated that the eco-social agriculture preserves the health of soil, plants, animals, humans and the planet as a whole by reproducing natural cycles, increasing biodiversity, and maintaining ecosystem services. It is based on natural cycles such as soil fertility conservation, carbon sequestration, natural water balance and soil microbial life, and avoids the use of chemically synthetic pesticides, hormones and synthetic fertilizers. Attention is paid to the promotion of biodiversity, animal welfare and human health. Practices based on agro-ecological and cultivation principles, such as organic and biodynamic agriculture, permaculture, traditional agroforestry or silvopastoral systems could serve as examples. Social agriculture supports the preservation and restoration of valuable cultural and natural landscapes and seeks to preserve biodiversity (Van Elsen et al., 2006). Pisters et al. (2019) studied ‘place-based’ sustainability initiatives (as SA, ecological communities, urban gardens, creative spaces, eco-tourism or sustainable energy initiatives).

Economic and multifunctional agriculture contexts

The authors, who examine the economic effects associated with the concept of SA, deal with the economic viability of SF (return on investment, cost-effectiveness), impact of SA on the development of local and regional economy, and also examine the consumers’ preferences in choosing products produced on a social farm. Tulla et al. (2020) addressed the return on investment in social agriculture using the SROI (Social Return on Investment) methodology. Elsey et al. (2014) evaluated the cost-effectiveness of social farms that serve as probation space for offenders. Another part of the economically oriented studies was to examine the demand for social farming products, Tempesta et al. (2019), Torquati et al. (2019b). The studies are based on the so-called Discrete Choice Experiments (DCEs) to estimate the customer’s willingness to pay a premium price for a regular product from farms that employ people with disabilities and autism spectrum disorders. Bassi et al. (2016) analysed the economic results of social farms and effects of internal structure and external environment on these results.

Social agriculture is one of the forms of multifunctional agriculture and therefore these terms occur in close connection with each other in literature. Heringa et al. (2013) examined the economic effects of multifunctional agriculture (SA as one of its alternatives) on the Dutch regions using the input-output model. We identified a high intensity of this context (20.9% of studies). According to De Krom & Dessein (2013), the concept of SA has developed mainly as a result of the transformation in the agricultural sector (from productive to multifunctional) as well as in health and social services (from highly institutionalized to community care). It is currently considered a socially sustainable practice in Flanders that exploits the innate inclination of professional farmers to provide care (caring multifunctional farmer). De Krom & Dessein (2013) consider on-farm health care, regional products, nature management, agrotourism, child care and education to be multifunctional activities in agriculture. Similarly, more detailed characteristics of multifunctional agriculture in a broader sense (including SA) are addressed in contributions by Dias et al. (2019), Todorova & Ikova (2014), and Gurrieri et al. (2014). Meraner et al. (2015) examined the determinants of farm diversification in the Netherlands. The research included the socio-demographic, economic and geographical characteristics of the farm in particular, which are expected to influence the diversification decision. Kristensen et al. (2019) examined patterns and processes of diversification of a corporate structure on the suburban farms in Denmark, with a particular focus on the use of three resources: land, buildings and rural assets for diversification activities. Pölling et al. (2016) dealt with urban farms as with business models (presenting specialization, differentiation and diversification) that develop participatory agricultural activities at Metropolis Ruhr's in Germany. Zasada (2011) examines the concept of multifunctional agriculture in peri-urban areas, and the promotion of the concept in the use of policy and planning tools. Bjørkhaug & Richards (2008) compared the functionality of the concept of multifunctional agriculture in the environment of two countries, Norway and Australia. Research has shown that while Norway declares the policy of preserving and protecting rural areas, cultural landscapes, farming and food security very clearly, the multifunctional agricultural paradigm in Australia is currently poorly implemented. In their paper, Bloksma & Struik (2007) advise farmers on how to properly design or redesign a sustainable farm, using a parallel of a doctor's view of the human being and his health. Moruzzo et al. (2020) present SA as a part of multifunctional agriculture, which provides new social services for urban and rural areas in Italy and the EU. Hassink et al. (2016) compared the approaches and strategies of the service providers in the SA, which differ from each other in multifunctionality (degree of diversification), degree of legitimacy, and the background of the initiator. The aim of the study was to identify the key factors that contribute to the success of social farms, especially focusing on the role of entrepreneurship, commitment and the ability to cope with the existing barriers in the Netherlands. Hassink et al. (2018) addressed the conditions and current problems of social farming in the Netherlands similarly, however in more detail.

Rural development and social innovation

Social agriculture contributes to rural development significantly. It is considered to be a social innovation and an instrument of territorial development policy, especially in rural areas but also in urban ones. García-Llorente et al. (2016) stated that SA supports the use of local resources and networking in order to strengthen the regional economic cycles and lead rural communities to sustainable development. It supports the local-regional cycles and the resilience of the rural region by integrating production and marketing into local economic circles and creating jobs. SA helps to preserve cultural heritage, traditional agricultural practices and knowledge. It also encourages the creation of new networks between stakeholders from different sectors. Foti et al. (2016) defined the value of SA to be a tool of the integrated development of metropolitan areas. Mastronardi et al. (2020) discussed the role of community cooperatives in Italy, to be a policy tool for reducing regional disparities and increasing the resilience of areas suffering from depopulation and aging. Baselice et al. (2021) focused on the benefits of SA on the employability of NEET young people.

The application of the SA concept as a tool to support the local development and its application in solving the specific problems of rural areas (in addition to providing the aforementioned social and health services) is of particular interest. These examples usually go beyond the traditional perception of social farming. Establishment of social cooperatives in Italy in the 1990s is one of the examples (Fazzi & Elsen,

2020). These arose in response to the need to fight crime in the Italian countryside. These included illegal job recruitment, economic exploitation of the workforce, and impoverishment of the business community, e.g., minimizing margins for local producers. The development of SA was supported in particular by the adoption of law that allowed confiscation of criminal assets, including agricultural land, and entrusting its administration to civil society organizations that use it for social purposes (Elsen et al., 2021). Crofting in Scotland is another example of supporting local development and preserving traditional settlements through social farming. It is based on a small-scale low-intensity practice that employs rights to use common pastures. This is vital for the retention of population and land use in highlands and islands. This model is governed by a specific legislative framework (Russell et al., 2021).

Some studies (6%) focus on social innovation support policies in rural areas or on social policies that include SA support instruments (e.g., Chen et al., (2020) in active aging, Vrontis et al. (2021) in social entrepreneurship, Ludvig et al. (2021) in forestry). These studies showed that supportive policies can either be the driving force behind the social innovation or the result.

3.3 Social agriculture target groups

As far as the target groups of social farming are concerned, up to 48.5% of authors focus on (several) different target groups, or it was not essential for the author to distinguish the target group. In publications that are focused on one target group, most studies (20.1%) were focused on people with mental disabilities. Another group of publications (up to 15.7%) were dedicated to the people under the treatment process (psychiatric patients, patients with autism, people with learning disabilities, in cancer treatment, people after injury, people with addiction, people suffering from burnout), and 11.2% of the outputs were focused on seniors.

Tab 4. Social agriculture target groups (analysed publications). Source: own processing

Target groups	Number of outputs	Share of outputs (%)
Different	65	48.5
Persons under the treatment process *	21	15.67
People with mental disabilities	27	20.14
Seniors	15	11.19
Other target groups **	12	8.95
Traumatized persons	4	2.96
People with physical disabilities	4	2.98
Migrants	2	1.49
Persons after serving the sentence	1	0.74
Long-term unemployed	2	1.49

* psychiatric patients, patients with autism, people with learning disabilities, in cancer treatment, people after injury, people with addiction, people suffering from burnout

** young people, mothers with children, families with children, alcoholics and traumatized people etc.

Furthermore, the outputs were focused on other target groups (9%), too, which were usually at risk of social exclusion – young people, mothers with children, families with children, alcoholics and traumatized people. In the group, there were rather sporadic outputs focused on migrants, the long-term unemployed and people after serving their sentences. None of the scientific publications is specifically addressed to the homeless and drug addicts (although examples of targeting these groups undoubtedly exist).

3.4 Social agriculture case studies

Special attention was paid to 104 case studies of SA. Localization to a territory, topic and target groups of the case studies were considered.

Localization

Based on the obtained data, we found out that although the topic of social agriculture is international, up to 96 (91%) case studies were conducted in a European country, out of a total of 104 case studies identified in the sample. Most of the case studies on social farming studied cases in Italy (24%), the Netherlands (22%), the United Kingdom (14%), and Norway (10%). More detailed information on the location of the studies is given in Figure 2.

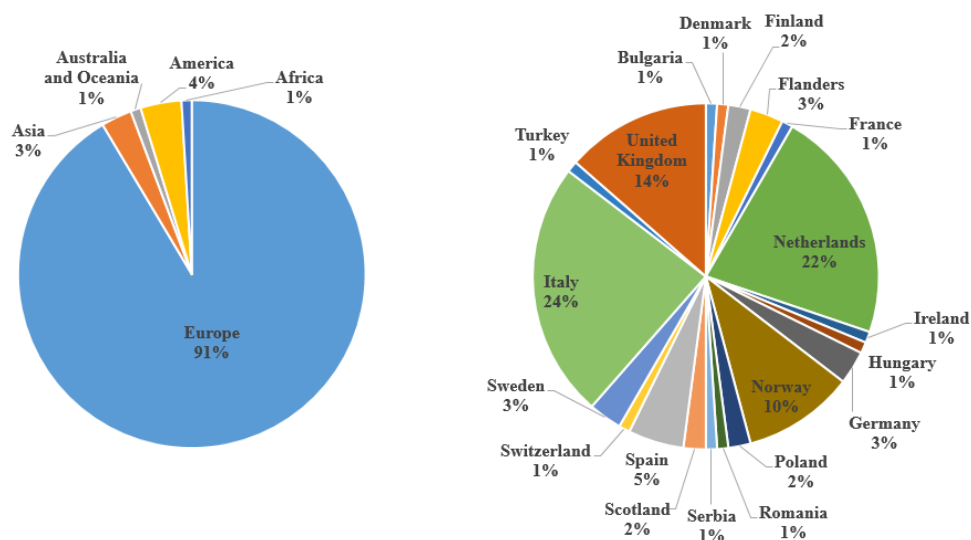


Fig 2. Geographical distribution of the case studies (world and Europe). Source: own processing

Topics and target groups

Do some of the countries, in which the concept of SA develops, focus on some topics or target groups more intensively than the other ones? We sought the answer to this question using the cluster analysis method. We narrowed the basic set to the set of 104 case studies because they were usually carried out in a specific geographical area. We identified 6 clusters.

Tab 5. Clusters of the case studies focused on social agriculture. Source: own processing

1 Education (5 publications)	• Topic – predominantly educational effects of SA and policy support to social innovation in rural areas, and social policy support to SA; • Target groups – ‘other’ (see Table 3); • Territory – Italy
2 Rural development (14 publications)	• Topic – predominantly SA in the context of rural development, social innovation in rural areas, SA and multifunctional agriculture; • Target groups – more different groups; • Territory – predominantly Italy
3 Social effects (30 publications)	• Topic – predominantly social effects of SA, health effects of SA; • Target groups – primarily seniors and persons under the treatment process; • Territory – the Netherlands, Norway, Spain
4 Health effects (19 publications)	• Topic – predominantly health effects of SA, social effects of SA; • Target groups – primarily people with mental disabilities and persons under the treatment process; • Territory mainly the United Kingdom and Norway
5 Multifunctional agriculture (33 publications)	• Topic – predominantly SA as multifunction agriculture; • Target groups – more different groups; • Territory– mainly the Netherlands and Italy;
6 Multi-thematic (3 publications)	• Topic – multi-thematic publications on health, social and educational SA benefits; • Target groups – more different groups; • Territory – the United Kingdom and Italy;

The case studies carried out in Italy are more intensively focused on the context of rural development, rural social innovation and multifunctional agriculture (cluster 2), in Netherlands predominantly on multifunctional agriculture (cluster 5).

The primary health effects and social effects associated with the SP concept are addressed in the studies conducted in the United Kingdom and Norway. This group of studies (cluster 3) is also characterised by a focus on a narrower target group of clients – people with mental disabilities and people under the treatment process. Similarly, the case studies from the Netherlands, Norway and Spain address primarily the social and health effects as well as the other contexts. In other studies (cluster 4), mainly those concerning the United Kingdom and Norway, the target groups of SA clients consisted often of seniors and people under the treatment process.

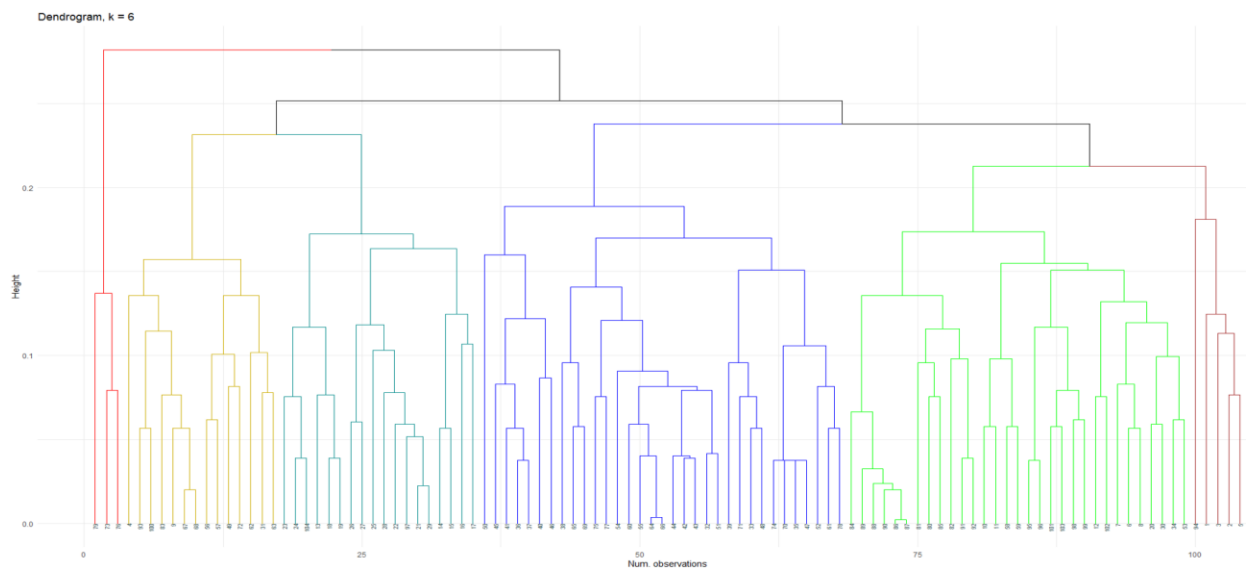


Fig 3. Illustration of the case study clusters. Source: own processing

Cluster 1 represents a relatively small group of case studies that focus mainly on the educational effects associated with social agriculture, and a policy to support social innovation in rural areas, a social policy supporting SA. The case studies in this group are focused on other groups of clients, e.g., people at risk of social exclusion – young people, mothers with children, families with children, alcoholics.

Cluster 5 represents multi-thematic publications dealing with health, social and educational effects of SA on various target groups of clients in the United Kingdom and Italy.

3.5 Publications throughout the years and subject areas

Interest in the topic of social agriculture has been growing continuously since 2014 (Figure 4). In 2006, the collective work “Farming for Health” by Jan Hassink and Majken Dijk (eds.) with case studies of countries with experience with the SA concept was published. In the period of 2007–2013, we came across the topic of SA in the analysed databases sporadically. It was not until 2014 that the intensity of the topic of SA increased and in 2020, it reached more than twice the number of the published outputs in the examined databases compared to 2014.

The theme of green care and social agriculture (social farming) extends to several scientific disciplines, and it is therefore published within various scientific disciplines. The structure of the published outputs has changed gradually, as is reflected in the thematic focus of scientific and professional journals and books. While in the period of 2006–2007, we identified the topic of SA mainly in publications focused on agricultural and biological sciences, later the topic of SA began to appear more often in publications focused on social sciences (since 2014 until now), medicine, psychology and nursing (since 2017 until now), and environmental sciences (2019–2020). In terms of the incidence of publications on the topic of

SA, it was published frequently in Journal of Rural Studies (12.7% of the examined outputs), Health & Place (9%), and Sustainability (7%). The authors have repeatedly published on the aspects of SA in the NJAS – Wageningen Journal of Life Sciences, Land Use Policy, International Journal of Environmental Research and Public Health, BMC Geriatrics, Journal of the American Medical Directors Association, and Urban Forestry & Urban Greening.

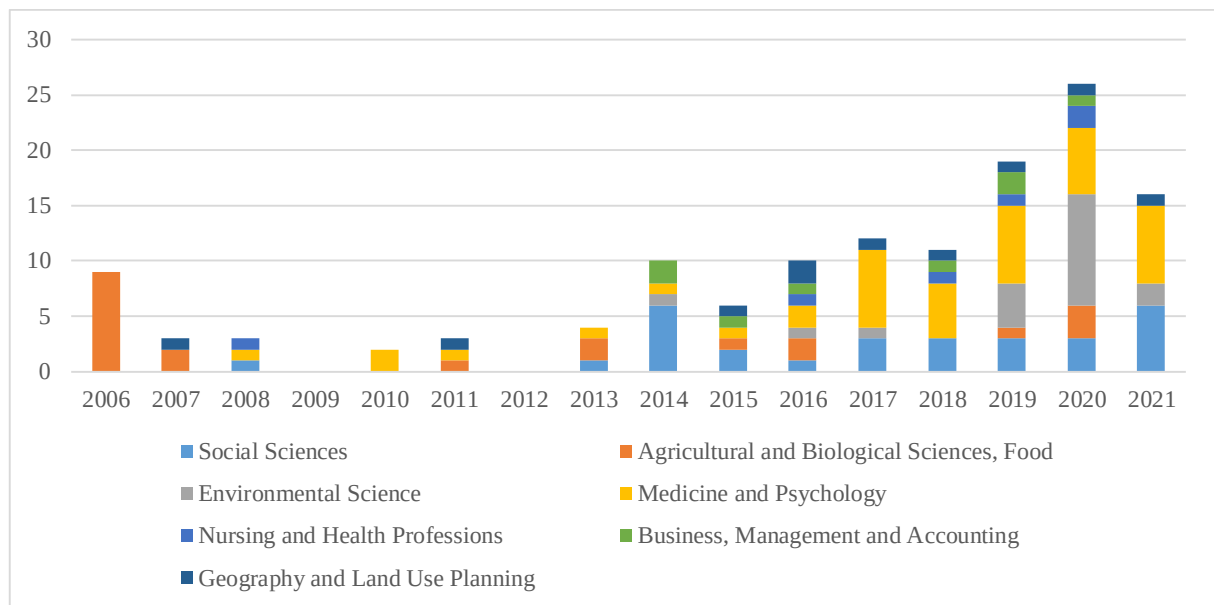


Fig 4. Structure of the scientific outputs according to the year of publication and scientific discipline. Source: own processing based on Science Direct, Springer Link a Web of Science (2021). Note: Data for 2021 include outputs published until 31 December 2021

We can state that the topic of SA appears in scientific journals focused on medicine and psychology (30.6% of the outputs) with the highest frequency. This is related to the already mentioned positive health effects on the selected target groups of people under the treatment process, and the application of therapeutic methods in a social farm environment. Almost a third of 41 studies focused on medicine and psychology were published in Health & Place journal. The second most frequent discipline was social sciences (22% of the outputs), where topics presenting social effects associated with SA were published. As many as 59% of them were published in the Journal of Rural Studies, and they concerned the context of SA as a tool for rural development and social innovation, and a part of multifunctional agriculture. Interestingly, almost all of these studies focused on different target groups. Group of agricultural and biological sciences, and food sciences disciplines (16%) was the third leading area of publication on SA. Most outputs (59%) in this area were published in the NJAS – Wageningen Journal of Life Sciences. The published studies were thematically diverse, and focused on health and social effects associated with SA and multifunctional agriculture. We can include 14% of the analysed studies in the field of environmental science, of which 47% were published in the Sustainability journal. These contributions were equally thematically diverse (SA and rural development, social innovation, and environmental, educational and economic effects associated with SA), and addressed different target groups. Topics related to SA were also published within geography and land use planning, business (7.5%), management and accounting (6%), and nursing and health professions (4.5%) disciplines.

We also analysed the type of publication. Research articles (74%) predominate, 12% of them are book chapters, and 10% are review articles. Interestingly, up to 92% of the research articles are aimed at case studies focused on SA.

Tab 6. Number of the outputs on social agriculture published within the subject areas. Source: own processing

Subject area	N°	Journal (the most frequent)	N°
Medicine and Psychology	41	Health & Place	12
		Journal of the American Medical Directors Association	4
		BMC Geriatrics	4
Social Sciences	29	Journal of Rural Studies	17
Agricultural and Biological Sciences, Food	21	NJAS – Wageningen Journal of Life Sciences	7
Environmental Science	19	Sustainability	9
		International Journal of Environmental Research and Public Health	5
Geography and Land Use Planning	10	Land Use Policy	5
Business, Management and Accounting	8	Agricultural and Food Economics	2
Nursing and Health Professions	6	EXPLORE	2

4. Conclusions

The concept of social agriculture has developed mainly as a result of the transformation in the agricultural sector, from productive to multifunctional, as well as in health and social services, from highly institutionalized to community care (De Krom & Dessein, 2013).

Social agriculture provides opportunities for addressing a number of mainly social problems primarily (but not only) in rural areas. Green care (social agriculture) farms are significant players in rural development, work and social inclusion, and can instantly and innovatively react to local needs.

Scientific publishing activity points to the researchers' interest in the issue, which reflects the reality of the issue in practice. The systematic literature review of the definition and context of social agriculture (farming) thus helps to understand the situation in the sector, estimate the level of knowledge, and recognize the issues and gaps and potential topics for further research.

It is natural that the terminology of green care farming and social agriculture is not unified. The concept of social farming (social agriculture) varies from country to country, depending on the specific conditions for its development. Different terms are used in different geographical conditions, which reflect the historical conditions of agricultural development and land management, different economic and social situation in the country, ways of providing social and health care, as well as the relatedness of the used language.

Health and therapeutic benefits of social agriculture are the most frequent contexts of the scientific publications. These are addressed in more than a third of the scientific publications (71% of them are case studies). Some of the publications deal with the topic more generally. Public health in clinical and non-clinical populations and mind and body interventions based on nature or green space including therapeutic gardens and farms are addressed, too. Besides the space of farms and gardens, animals and plants as players within the therapy are studied, too. Different target groups of the provided therapy (most often the psychiatric, neurological, with dementia, physically impaired etc.) are concerned as well. Seniors (without or with signs of dementia) are a frequent target group of care farming. Some of the studies are focused on adults with autism, people with traumatic grief, mothers and children, people with cancer fatigue, and in the aftermath of COVID-19.

The social effects of social agriculture (often together with health, environmental or economic effects) are the second most intensively discussed topic. The educational, environmental and economic effects of social agriculture are discussed in the analysed publications with a similar intensity.

The application of the social agriculture concept contributes to the strengthening of the social ties (interactions) on the farm, and supports the community way of life of the clients, the inclusion of the socially excluded persons, and their participation in the activities and social life. Within its educational activities, it promotes personal skills such as critical thinking, teamwork, solidarity, community cohesion

and a sustainable lifestyle, reciprocity, and mutual respect. Informal and continuous learning on the farm has a positive impact not only on the participants of the education but also on the environment. Many practices on social farms are driven by strong environmental ethics and can have beneficial effects on the ecosystem and the conservation of biodiversity, too. Social agriculture supports the use of local resources and networking in order to strengthen the regional economic cycles and lead rural communities to sustainable development. It supports the local-regional cycles and the resilience of the rural region by integrating production and marketing into the local economic circles and providing job opportunities (García-Llorente et al., 2016).

Social agriculture is in most practices considered risky in terms of economic sustainability. On the other hand, the societal value it brings is undoubtedly immense and difficult to quantify. It can bring savings in social transfers and other public expenditures. This is why at least social, health and agricultural policies at the national and regional levels in many countries take into account social agriculture as a policy instrument. Environmental and education and other policies are also of relevance. Setting up supportive policies (across sectors) at different levels is important. The interest of researchers and authors in the topic of social agriculture is growing. The supportive policies in different settings are a potential topic for future research.

Acknowledgement

The paper was prepared within the project VEGA 1/0650/20 Models of social agriculture as an instrument of support to inclusive growth.

Academic references

- [1] Balázs, B., Horváth, J. & Pataki, G. (2020). Science-society dialogue from the start: Participatory research agenda-setting by Science Cafés. *European Journal of Futures Research*, 8, 5. DOI: 10.1186/s40309-020-00164-x.
- [2] Baselice, A., Prosperi, M. & Lopolito, A. (2021). A Conceptual Framework for the Evaluation of Social Agriculture: An Application to a Project Aimed at the Employability of Young People NEET. *Sustainability*, 13(15), 8608. DOI: 10.3390/su13158608.
- [3] Bassi, I., Nassivera, F. & Piani, L. (2016). Social farming: a proposal to explore the effects of structural and relational variables on social farm results. *Agricultural and Food Economics*, 4, 13. DOI: 10.1186/s40100-016-0057-6.
- [4] Berget, B. & Grepperud, S. (2011). Animal-assisted interventions for psychiatric patients: beliefs in treatment effects among practitioners. *European Journal of Integrative Medicine*, 3(2), e91–e96. DOI: 10.1016/j.eujim.2011.03.001.
- [5] Berget, B., Ekeberg, Ø. & Braastad, B. O. (2008). Animal-assisted therapy with farm animals for persons with psychiatric disorders: effects on self-efficacy, coping ability and quality of life, a randomized controlled trial. *Annali dell' Istituto Superiore di Sanità*, 47(4), 384–390. DOI: 10.4415/ANN_11_04_10.
- [6] Besser, T. & Mann, S. (2015). Which farm characteristics influence work satisfaction? An analysis of two agricultural systems. *Agricultural Systems*, 141, 107–112. DOI: 10.1016/j.agsy.2015.10.003.
- [7] Bjørkhaug, H. & Richards, C. A. (2008). Multifunctional agriculture in policy and practice? A comparative analysis of Norway and Australia. *Journal of Rural Studies*, 24(1), 98–111. DOI: 10.1016/j.jrurstud.2007.06.003.
- [8] Bloksma, J. R. & Struik, P. C. (2007). Coaching the process of designing a farm: using the healthy human as a metaphor for farm health. *NJAS: Wageningen Journal of Life Sciences*, 54(4), 413–429. DOI: 10.1016/S1573-5214(07)80013-3.

- [9] Bock, B. B. & Oosting, S. J. (2010). A classification of green care arrangements in Europe. In Dessein, J. & Bock, B. B., eds., *The Economics of Green Care in Agriculture* (pp. 15–26). Loughborough University.
- [10] Bombach, C., Stohler, R. & Wydler, H. (2015). Farming families as foster families: The findings of an exploratory study on care farming in Switzerland. *International Journal of Child, Youth and Family Studies*, 6(3), 440–457. DOI: 10.18357/ijcyfs.63201513564.
- [11] Bowler, I. R. (1985). *Agriculture under the Common Agricultural Policy: a Geography*. Manchester: Manchester University Press.
- [12] Braastad, B. O., Gallis, C., Sempik, J., Senni, S. & Van Elsen, T. (2007). COST Action 866 “Green Care in Agriculture” – a multi-disciplinary scientific network. Gallis, Ch., ed., *Green care in agriculture: Health effects, economics and policies* (pp. 13–24). Thessaloniki: University Studio Press.
- [13] Bragg, R. & Leck, C. (2017). *Good practice in social prescribing for mental health: The role of nature-based interventions*. York: Natural England.
- [14] Buist, Y., Verbeek, H., De Boer, B. & De Bruin, S. R. (2018). Innovating dementia care; implementing characteristics of green care farms in other long-term care settings. *International Psychogeriatrics*, 30(7), 1057–1068. DOI: 10.1017/S1041610217002848.
- [15] Cacciatore, J., Gorman, R. & Thieleman, K. (2020). Evaluating care farming as a means to care for those in trauma and grief. *Health & Place*, 62, 102281. DOI: 10.1016/j.healthplace.2019.102281.
- [16] Chen, H. M., Huang, C. C. & Gao, P. T. (2020). Feasibility assessment and implementation strategies of green care in rural Taiwan. *Landscape and Ecological Engineering*, 17, 309–321. DOI: 10.1007/s11355-020-00426-7.
- [17] Cutcliffe, J. R. & Travale, R. (2016). Unearthing the Theoretical Underpinnings of ‘Green Care’ in Mental Health and Substance Misuse Care: History, Theoretical Origins, and Contemporary Clinical Examples. *Issues in Mental Health Nursing* 37(3), 137–147. DOI: 10.3109/01612840.2015.1119220.
- [18] Davies, J., McKenna, M., Bayley, J., Denner, K. & Young, H. (2020). Using engagement in sustainable construction to improve mental health and social connection in disadvantaged and hard to reach groups: a new green care approach. *Journal of Mental Health*, 29(3), 350–357. DOI: 10.1080/09638237.2020.1714001.
- [19] De Boer, B., Beerens, H. C., Katterbach, M. A., Viduka, M., Willemse, B. M. & Verbeek, H. (2018). The physical environment of nursing homes for people with dementia: Traditional nursing homes, small-scale living facilities, and green care farms. In *Healthcare* 6(4), 137. DOI: 10.3390/healthcare6040137.
- [20] De Boer, B., Buist, Y., De Bruin, S. R., Backhaus, R. & Verbeek, H. (2021). Working at Green Care Farms and Other Innovative Small-Scale Long-Term Dementia Care Facilities Requires Different Competencies of Care Staff. *International Journal of Environmental Research and Public Health*, 18(20), 10747. DOI: 10.3390/ijerph182010747.
- [21] De Boer, B., Hamers, J. P. H., Beerens, H. C., Zwakhalen, S. M. G., Tan, F. E. S. & Verbeek, H. (2015). Living at the farm, innovative nursing home care for people with dementia – study protocol of an observational longitudinal study. *BMC Geriatrics*, 15, 144. DOI: 10.1186/s12877-015-0141-x.
- [22] De Boer, B., Hamers, J. P., Zwakhalen, S. M., Tan, F. E. & Verbeek, H. (2017a). Quality of care and quality of life of people with dementia living at green care farms: a cross-sectional study. *BMC Geriatrics*, 17(1), 155. DOI: 10.1186/s12877-017-0550-0.
- [23] De Boer, B., Hamers, J. P., Zwakhalen, S. M., Tan, F. E., Beerens, H. C. & Verbeek, H. (2017b). Green care farms as innovative nursing homes, promoting activities and social interaction for people with dementia. *Journal of the American Medical Directors Association*, 18(1), 40–46. DOI: 10.1016/j.jamda.2016.10.013.

- [24] De Boer, B., Verbeek, H., Zwakhalen, S. M. & Hamers, J. P. (2019). Experiences of family caregivers in green care farms and other nursing home environments for people with dementia: a qualitative study. *BMC Geriatrics*, 19, 149. DOI: 10.1186/s12877-019-1163-6.
- [25] De Bruin, S. R., Oosting, S. J., Tobi, H., Blauw, Y. H., Schols, J. M. G. A. & De Groot, C. P. G. M. (2010). Day care at green care farms: A novel way to stimulate dietary intake of community-dwelling older people with dementia? *The Journal of Nutrition, Health & Aging*, 14(5), 352–357. DOI: 10.1007/s12603-010-0079-9.
- [26] De Bruin, S., De Boer, B., Beerens, H., Buist, Y. & Verbeek, H. (2017). Rethinking dementia care: the value of green care farming. *Journal of the American Medical Directors Association*, 18(3), 200–203. DOI: 10.1016/j.jamda.2016.11.018.
- [27] De Krom, M. P. & Dessein, J. (2013). Multifunctionality and care farming: Contested discourses and practices in Flanders. *NJAS-Wageningen Journal of Life Sciences*, 64–65, 17–24. DOI: 10.1016/j.njas.2012.09.002.
- [28] Dessein, J. & Bock, B. (2010). *The Economics of Green Care in Agriculture*. Loughborough University.
- [29] Dessein, J., Bock, B. B. & De Krom, M. P. (2013). Investigating the limits of multifunctional agriculture as the dominant frame for Green Care in agriculture in Flanders and the Netherlands. *Journal of Rural Studies*, 32, 50–59. DOI: 10.1016/j.jrurstud.2013.04.011.
- [30] Di Iacovo, F. (2003). New trends in the relationship between farmers and local communities in Tuscany. In Huylenbroeck, G. van & Durand, G., eds., *Multifunctional Agriculture: a new Paradigm for European Agriculture and Rural Development*, (pp. 101–125). Aldershot: Ashgate.
- [31] Di Iacovo, F. (2009). Social Farming: dealing with communities rebuilding local economy. *Journal of Farm Management*, 13(7), 1–8.
- [32] Di Iacovo, F. P. & O'Connor, D. (2009). *Supporting policies for social farming in Europe: Progressing multifunctionality in responsive rural areas*. Firenze: ARSIA.
- [33] Di Iacovo, F., Moruzzo, R., Rossignoli, C. M. & Scarpellini, P. (2016). Measuring the effects of transdisciplinary research: the case of a social farming project. *Futures*, 75, 24–35. DOI: 10.1016/j.futures.2015.10.009.
- [34] Di Iacovo, F., Moruzzo, R., Rossignoli, C. & Scarpellini, P. (2013). Innovating rural welfare in the context of civicness, subsidiarity and co-production: Social Farming. In *Social Issues and Health Care in Rural Areas in the Context of Demographic Change* (pp. 4–21). Erfurt: Fachhochschule Erfurt.
- [35] Dias, C. S., Rodrigues, R. G. & Ferreira, J. J. (2019). Agricultural entrepreneurship: Going back to the basics. *Journal of Rural Studies*, 70, 125–138. DOI: 10.1016/j.jrurstud.2019.06.001.
- [36] Elings, M. (2006). People-plant interaction: the physiological, psychological and sociological effects of plants on people. In Hassink, J. & van Dijk, M., eds., *Farming for Health* (pp. 43–55). Dordrecht: Springer.
- [37] Elsen, S. & Fazzi, L. (2021). Extending the concept of social farming: Rural development and the fight against organized crime in disadvantaged areas of southern Italy. *Journal of Rural Studies*, 84, 100–107. DOI: 10.1016/j.jrurstud.2021.03.009.
- [38] Elsey, H., Bragg, R., Elings, M., Cade, J. E., Brennan, C., Farragher, T., Tubeuf, S., Gold, R., Shickle, D., Wickramasekera, N., Richardson, Z., Murray, J. (2014). Understanding the impacts of care farms on health and well-being of disadvantaged populations: a protocol of the Evaluating Community Orders (ECO) pilot study. *BMJ Open* 4(10), e006536. DOI: 10.1136/bmjopen-2014-006536.
- [39] Eriksen, S., Pedersen, I., Taranrød, L. B., Ellingsen-Dalskau, L. H., Garshol, B. F., Ibsen, T. L., Kirkevold, Ø., Elin Strandli, E. & Patil, G. G. (2019). Farm-based day care services—a prospective study protocol on health benefits for people with dementia and next of kin. *Journal of Multidisciplinary Healthcare*, 12, 643–653. DOI: 10.2147/JMDH.S212671.

- [40] Farstad, M., Logstein, B., Haugen, M. S. & O'Connor, D. (2021). Farm-based day care on the market: The case of dementia care services in Norway. *Journal of Rural Studies*, 82, 130–137. DOI: 10.1016/j.jrurstud.2021.01.022.
- [41] Fazzi, L. (2011). Social co-operatives and social farming in Italy. *Sociologia Ruralis*, 51(2), 119–136. DOI: 10.1111/j.1467-9523.2010.00526.x.
- [42] Fazzi, L. & Elsen, S. (2020). Actors in Social Agriculture Cooperatives Combating Organized Crime in Southern Italy: Cultivating the Ground. *Sustainability*, 12(21), 9257. DOI: 10.3390/su12219257.
- [43] Fèche, R., Noûs, C. & Barataud, F. (2021). Building a transformative initiative for a territorialized agri-food system: constructing a living-lab and confronting norms? A case study from Mirecourt (Vosges, France). *Journal of Rural Studies*, 88, 400–409. DOI: 10.1016/j.jrurstud.2021.07.026.
- [44] Fjeldavli, E. (2006). The lay beliefs about Farming for Health. In Hassink, J. & van Dijk, M., eds., *Farming for Health* (pp. 73–90). Dordrecht: Springer.
- [45] Fletcher, E. I. & Collins, C. M. (2020). Urban agriculture: Declining opportunity and increasing demand – How observations from London, UK, can inform effective response, strategy and policy on a wide scale. *Urban Forestry & Urban Greening*, 55, 126823. DOI: 10.1016/j.ufug.2020.126823.
- [46] Fonte, M. & Cucco, I. (2017). Cooperatives and alternative food networks in Italy. The long road towards a social economy in agriculture. *Journal of Rural Studies*, 53, 291–302. DOI: 10.1016/j.jrurstud.2017.01.019.
- [47] Foti, V. T., Scuderi, A., Stella, G., Sturiale, L., Timpanaro, G. & Trovato, M. R. (2016). The integration of agriculture in the politics of social regeneration of degraded urban areas. In Mondini, G., Fattinnari, E., Oppio, A., Bottero, M. & Stanghellini S., eds., *Integrated Evaluation for the Management of Contemporary Cities* (pp. 99–111). Cham: Springer. DOI: 10.1007/978-3-319-78271-3.
- [48] Gagliardi, C. & Piccinini, F. (2019). The use of nature-based activities for the well-being of older people: An integrative literature review. *Archives of Gerontology and Geriatrics*, 83, 315–327. DOI: 10.1016/j.archger.2019.05.012.
- [49] Galardi, M., Contalbrigo, L., Toson, M., Bortolotti, L., Lorenzetto, M., Riccioli, F. & Moruzzo, R. (2020). Donkey assisted interventions: A pilot survey on service providers in North-Eastern Italy. *Explore* 18(1), 10–16. DOI: 10.1016/j.explore.2020.11.004.
- [50] García-Llorente, M., Rossignoli, C. M., Di Iacovo, F. & Moruzzo, R. (2016). Social farming in the promotion of social-ecological sustainability in rural and periurban areas. *Sustainability*, 8(12), 1238. DOI: 10.3390/su8121238.
- [51] Giarè, F., Ricciardi, G. & Borsotto, P. (2020). Migrants workers and processes of social inclusion in Italy: The possibilities offered by social farming. *Sustainability*, 12(10), 3991. DOI: 10.3390/su12103991.
- [52] Gorman, R. & Cacciatore, J. (2017). Cultivating our humanity: A systematic review of care farming & traumatic grief. *Health & Place*, 47, 12–21. DOI: 10.1016/j.healthplace.2017.06.006.
- [53] Gorman, R. & Cacciatore, J. (2020). Care-farming as a catalyst for healthy and sustainable lifestyle choices in those affected by traumatic grief. *NJAS-Wageningen Journal of Life Sciences*, 92, 100339. DOI: 10.1016/j.njas.2020.100339.
- [54] Guirado, C., Valldeperas, N., Tulla, A. F., Sendra, L., Badia, A., Evard, C., Cebollada, A., Espluga, J. Pallares, I. & Vera, A. (2017). Social farming in Catalonia: Rural local development, employment opportunities and empowerment for people at risk of social exclusion. *Journal of Rural Studies*, 56, 180–197. DOI: 10.1016/j.jrurstud.2017.09.015.
- [55] Gurrieri, A. R., Lorzio, M. & Stramaglia, A. (2014). Gurrieri, A.R., Lorzio, M. & Stramaglia, A., eds., *The New Path of Agriculture*. In *Entrepreneurship Networks in Italy* (pp. 17–57). Cham: Springer.

- [56] Harris, H. (2017). The social dimensions of therapeutic horticulture. *Health & Social Care in the Community*, 25(4), 1328–1336. DOI: 10.1111/hsc.12433.
- [57] Hassink, J. (2003). Combining agricultural production and care for persons with disabilities: a new role of agriculture and farm animals. In Cristovao, A. & Zorini, L. O., eds., *Farming and rural systems research and extension. Local identities and globalisation* (pp. 332–341). Firenze: ARSIA.
- [58] Hassink, J. & Van Dijk, M., eds. (2006). Farming for health across Europe: Comparison between countries, and recommendations for a research and policy agenda. In Hassink, J. & van Dijk, M., eds., *Farming for Health* (pp. 345–357). Dordrecht: Springer.
- [59] Hassink, J., Elings, M., Zweekhorst, M., van den Nieuwenhuizen, N. & Smit, A. (2010). Care farms in the Netherlands: Attractive empowerment-oriented and strengths-based practices in the community. *Health & Place*, 16(3), 423–430. DOI: 10.1016/j.healthplace.2009.10.016.
- [60] Hassink, J., Grin, J. & Hulsink, W. (2018). Enriching the multi-level perspective by better understanding agency and challenges associated with interactions across system boundaries. The case of care farming in the Netherlands: Multifunctional agriculture meets health care. *Journal of Rural Studies*, 57, 186–196. DOI: 10.1016/j.jrurstud.2017.12.018.
- [61] Hassink, J., Hulsink, W. & Grin, J. (2016). Entrepreneurship in agriculture and healthcare: Different entry strategies of care farmers. *Journal of Rural Studies*, 43, 27–39. DOI: 10.1016/j.jrurstud.2015.11.013.
- [62] Hassink, J., Vaandrager, L., Buist, Y. & De Bruin, S. (2019). Characteristics and challenges for the development of nature-based adult day services in urban areas for people with dementia and their family caregivers. *International Journal of Environmental Research and Public Health*, 16(8), 1337. DOI: 10.3390/ijerph16081337.
- [63] Haubenhofer, D. K., Elings, M., Hassink, J. & Hine, R. E. (2010). The development of green care in western European countries. *Explore*, 6(2), 106–111. DOI: 10.1016/j.explore.2009.12.002.
- [64] Hemingway, A., Ellis-Hill, C. & Norton, E. (2016). What does care farming provide for clients? The views of care farm staff. *NJAS: Wageningen Journal of Life Sciences*, 79(1), 23–29. DOI: 10.1016/j.njas.2016.09.001.
- [65] Heringa, P. W., Van der Heide, C. M. & Heijman, W. J. (2013). The economic impact of multifunctional agriculture in Dutch regions: An input-output model. *NJAS-Wageningen Journal of Life Sciences*, 64, 59–66. DOI: 10.1016/j.njas.2013.03.002.
- [66] Hine, R., Peacock, J. & Pretty, J. (2008). Care farming in the UK: contexts, benefits and links with therapeutic communities. *Therapeutic Communities*, 29(3), 245–260.
- [67] Hlušíčková, T. & Gardiánová, I. (2014). Farming therapy for therapeutic purposes. *Kontakt*, 16(1), e51–e56. DOI: 10.1016/j.kontakt.2013.06.001.
- [68] Hrivnák, M., Roháčiková, O. & Schwarcz, P. (2020). What Drives the Private Innovation in Rural Areas? In-Depth Case Study of Slovak Rural Region. *Administrative Sciences*, 10(3), 40. DOI: 10.3390/admsci10030040.
- [69] Hudcová, E., Chovanec, T. & Moudrý, J. (2018). Social entrepreneurship in agriculture, a sustainable practice for social and economic cohesion in rural areas: The case of the Czech Republic. *European Countryside*, 10(3), 377–397. DOI: 10.2478/euco-2018-0022.
- [70] Ibsen, T. L., Eriksen, S. & Patil, G. G. (2018). Farm-based day care in Norway—a complementary service for people with dementia. *Journal of Multidisciplinary Healthcare*, 11, 349–358. DOI: 10.2147/JMDH.S167135.
- [71] Jenkins, N., Gorman, R., Douglas, C., Ashall, V., Ritchie, L. & Jack-Waugh, A. (2021). Multi-species dementia studies: Contours, contributions and controversies. *Journal of Aging Studies*, 59, 100975. DOI: 10.1016/j.jaging.2021.100975.

- [72] Johannessen, B., Syvertsen, S., Kersten, C. & Berntsen, S. (2019). Cancer-related fatigue: Patients' experiences of an intervention at a green care rehabilitation farm. *Complementary Therapies in Clinical Practice*, 37, 133–139. DOI: 10.1016/j.ctcp.2019.101062.
- [73] Kaley, A., Hatton, C. & Milligan, C. (2019). Health geography and the 'performative' turn: making space for the audio-visual in ethnographic health research. *Health & Place*, 60, 102210. DOI: 10.1016/j.healthplace.2019.102210.
- [74] Knapik, W. (2018). The innovative model of Community-based Social Farming (CSF). *Journal of Rural Studies*, 60, 93–104. DOI: 10.1016/j.jrurstud.2018.03.008.
- [75] Knapik, W. (2020). Stimulators and inhibitors of the development of social care and support for the elderly in Poland. *Journal of Rural Studies*, 76, 12–24. DOI: 10.1016/j.jrurstud.2020.03.003.
- [76] Kogstad, R. E., Agdal, R. & Hopfenbeck, M. S. (2014). Narratives of natural recovery: Youth experience of social inclusion through green care. *International Journal of Environmental Research and Public Health*, 11(6), 6052–6068. DOI: 10.3390/ijerph110606052.
- [77] Kraftl, P. (2014). 'Alternative' Education Spaces and Local Community Connections: A Case Study of Care Farming in the United Kingdom. In Mills, S. & Kraftl, P., eds., *Informal Education, Childhood and Youth* (pp. 48–64). London: Palgrave Macmillan.
- [78] Kristensen, S. B. P., Præstholt, S., Busck, A. G., Winther, L., Fertner, C., Vesterager, J. P. & Vejre, H. (2019). On-farm Business Structure Diversification in Greater Copenhagen – Farmers in an urban landscape or entrepreneurs in a rural landscape? *Land Use Policy*, 88, 104093. DOI: 10.1016/j.landusepol.2019.104093.
- [79] Kwame Ameade, E. P., Owusu Amoah, L. A. & Ofori, B. Y. (2021). Green Care as Alternative Therapy: The Situation in Ghana. *Evidence-Based Complementary and Alternative Medicine*, 8812379. DOI: 10.1155/2021/8812379.
- [80] Lakhani, A., Norwood, M., Watling, D. P., Zeeman, H. & Kendall, E. (2019). Using the natural environment to address the psychosocial impact of neurological disability: A systematic review. *Health & Place*, 55, 188–201. DOI: 10.1016/j.healthplace.2018.12.002.
- [81] Leck, C., Evans, N. & Upton, D. (2014). Agriculture – Who cares? An investigation of 'care farming' in the UK. *Journal of Rural Studies*, 34, 313–325. DOI: 10.1016/j.jrurstud.2014.01.012.
- [82] Lee, A., Kim, S. O., Gim, G. M., Kim, D. S. & Park, S. (2020). Care farming program for family health: A pilot study with mothers and children. *International Journal of Environmental Research and Public Health*, 17(1), 27. DOI: 10.3390/ijerph17010027.
- [83] Loue, S. (2016). Approaches to Organizational Structure and Financing. In Loue, S., ed., *Therapeutic Farms* (pp. 39–50). Cham: Springer.
- [84] Loue, S., Karges, R. R. & Carlton, C. (2014). The therapeutic farm community: An innovative intervention for mental illness. *Procedia-Social and Behavioral Sciences*, 149, 503–507. DOI: 10.1016/j.sbspro.2014.08.298.
- [85] Ludvig, A., Sarkki, S., Weiss, G. & Živojinović, I. (2021). Policy impacts on social innovation in forestry and back: Institutional change as a driver and outcome. *Forest Policy and Economics*, 122, 102335. DOI: 10.1016/j.forpol.2020.102335.
- [86] Ludvig, A., Weiss, G., Sarkki, S., Nijnik, M. & Živojinović, I. (2018). Mapping European and forest related policies supporting social innovation for rural settings. *Forest Policy and Economics*, 97, 146–152. DOI: 10.1016/j.forpol.2018.09.015.
- [87] Lund, I. E., Granerud, A. & Eriksson, B. G. (2015). Green care from the provider's perspective: An insecure position facing different social worlds. *SAGE Open*, 5(1). DOI: 10.1177/2158244014568422.

- [88] Masterton, W., Carver, H., Parkes, T. & Park, K. (2020). Greenspace interventions for mental health in clinical and non-clinical populations: What works, for whom, and in what circumstances? *Health & Place*, 64, 102338. DOI: 10.1016/j.healthplace.2020.102338.
- [89] Masterton, W., Park, K., Carver, H. & Parkes, T. (2021). Greenspace programmes for mental health: A survey study to test what works, for whom, and in what circumstances. *Health & Place*, 72, 102669. DOI: 10.1016/j.healthplace.2021.102669.
- [90] Mastronardi, L., Giagnacovo, M. & Romagnoli, L. (2020). Bridging regional gaps: Community-based cooperatives as a tool for Italian inner areas resilience. *Land Use Policy*, 99, 104979. DOI: 10.1016/j.landusepol.2020.104979.
- [91] Meraner, M., Heijman, W., Kuhlman, T. & Finger, R. (2015). Determinants of farm diversification in the Netherlands. *Land Use Policy*, 42, 767–780. DOI: 10.1016/j.landusepol.2014.10.013.
- [92] Mmako, N. J., Courtney-Pratt, H. & Marsh, P. (2020). Green spaces, dementia and a meaningful life in the community: a mixed studies review. *Health & Place*, 63, 102344. DOI: 10.1016/j.healthplace.2020.102344.
- [93] Moriggi, A. (2020). Exploring enabling resources for place-based social entrepreneurship: a participatory study of Green Care practices in Finland. *Sustainability Science*, 15(2), 437–453. DOI: 10.1007/s11625-019-00738-0.
- [94] Moriggi, A., Soini, K., Bock, B. B. & Roep, D. (2020). Caring in, for, and with nature: An integrative framework to understand Green Care practices. *Sustainability*, 12(8), 3361. DOI: 10.3390/su12083361.
- [95] Moruzzo, R., Riccioli, F., Galasso, A., Troccoli, C., Espinosa Diaz, S. & Di Iacovo, F. (2020). Italian Social Farming: the Network of Coldiretti and Campagna Amica. *Sustainability*, 12(12), 5036. DOI: 10.3390/su12125036.
- [96] Motealleh, P., Moyle, W., Jones, C. & Dupre, K. (2019). Creating a dementia-friendly environment through the use of outdoor natural landscape design intervention in long-term care facilities: a narrative review. *Health & Place*, 58, 102148. DOI: 10.1016/j.healthplace.2019.102148.
- [97] Murray, J., Coker, J. & Elsey, H. (2019). Care farming: Rehabilitation or punishment? A qualitative exploration of the use of care farming within community orders. *Health & Place* 58, 102156. DOI: 10.1016/j.healthplace.2019.102156.
- [98] Newton, R., Keady, J., Tsekleves, E. & Obe, S. A. (2021). ‘My father is a gardener...’: A systematic narrative review on access and use of the garden by people living with dementia. *Health & Place*, 68, 102516. DOI: 10.1016/j.healthplace.2021.102516.
- [99] O’Connor, D., Lai, M. & Watson, S. (2010). *Overview of Social Farming and Rural Development Policy in Selected EU Member States. NRN Joint Thematic Initiative on Social Farming*. Brussels: European Communities.
- [100] Opinion of the European Economic and Social Committee on ‘Social Farming: Green Care and Social and Health policies’. *Official Journal of the European Union* 56, 44–48.
- [101] Pálsdóttir, A. M., K Stigsdotter, U., Persson, D., Thorpert, P. & Grahn, P. (2018). The qualities of natural environments that support the rehabilitation process of individuals with stress-related mental disorder in nature-based rehabilitation. *Urban Forestry & Urban Greening*, 29, 312–321. DOI: 10.1016/j.ufug.2017.11.016.
- [102] Petticrew, M. & Roberts, H. (2008). *Systematic reviews in the social sciences: A practical guide*. Hoboken, NJ: John Wiley & Sons.
- [103] Pickering, C. & Byrne, J. (2014). The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early-career researchers. *Higher Education Research & Development*, 33(3), 534–548. DOI: 10.1080/07294360.2013.841651.

- [104] Pirro, C. & Anguelovski, I. (2017). Farming the urban fringes of Barcelona: Competing visions of nature and the contestation of a partial sustainability fix. *Geoforum*, 82, 53–65. DOI: 10.1016/j.geoforum.2017.03.023.
- [105] Pisters, S. R., Vihinen, H. & Figueiredo, E. (2019). Place based transformative learning: a framework to explore consciousness in sustainability initiatives. *Emotion, Space and Society*, 32, 100578. DOI: 10.1016/j.emospa.2019.04.007.
- [106] Pölling, B., Mergenthaler, M. & Lorleberg, W. (2016). Professional urban agriculture and its characteristic business models in Metropolis Ruhr, Germany. *Land Use Policy*, 58, 366–379. DOI: 10.1016/j.landusepol.2016.05.036.
- [107] Ponzio, P., Di Matteo, A., Macchi, E., Traverso, T., Carluccio, A. & Di Stefano, M. B. (2018). Human and Animal Welfare Assessment during Animal Assisted Interventions (AAI): A Pilot Project in Progress. In Leone, A., Caroppo, A., Rescio, G., Diraco, G., Siciliano, P., eds., *Italian Forum of Ambient Assisted Living* (pp. 445–456). Cham: Springer.
- [108] Pretty, J. & Barton, J. (2020). Nature-based interventions and mind–body interventions: Saving public health costs whilst increasing life satisfaction and happiness. *International Journal of Environmental Research and Public Health*, 17(21), 7769. DOI: 10.3390/ijerph17217769.
- [109] Rosalina, P. D., Dupre, K. & Wang, Y. (2021). Rural tourism: A systematic literature review on definitions and challenges. *Journal of Hospitality and Tourism Management*, 47, 134–149. DOI: 10.1016/j.jhtm.2021.03.001.
- [110] Rotheram, S., McGarrol, S. & Watkins, F. (2017). Care farms as a space of wellbeing for people with a learning disability in the United Kingdom. *Health & Place*, 48, 123–131. DOI: 10.1016/j.healthplace.2017.10.001.
- [111] Russell, Z., Beattie, L. & Heaney, D. (2021). Spaces of well-being: Social crofting in rural Scotland. *Journal of Rural Studies* 86, 145–154. DOI: 10.1016/j.jrurstud.2021.05.007.
- [112] Russo, A. & Cirella, G. T. (2020). Edible Green Infrastructure for Urban Regeneration and Food Security: Case Studies from the Campania Region. *Agriculture*, 10(8), 358. DOI: 10.3390/agriculture10080358.
- [113] Scartazza, A., Mancini, M. L., Proietti, S., Moscatello, S., Mattioni, C., Costantini, F., Di Baccio, D., Villani, F., Massacci, A. (2020). Caring local biodiversity in a healing garden: Therapeutic benefits in young subjects with autism. *Urban Forestry & Urban Greening*, 47, 126511. DOI: 10.1016/j.ufug.2019.126511.
- [114] Seifert, A. R. (2014). Cultivating New Lives: An Ethnographic Pilot Study of Eco-therapy Provision for People with Alcohol-related Problems in Northern Ireland. *Anthropology in Action*, 21(1), 4–12. DOI: 10.3167/aia.2014.210103.
- [115] Sellberg, M. M., Norström, A. V., Peterson, G. D. & Gordon, L. J. (2020). Using local initiatives to envision sustainable and resilient food systems in the Stockholm city-region. *Global Food Security*, 24, 100334. DOI: 10.1016/j.gfs.2019.100334.
- [116] Sempik, J. (2010). Green care and mental health: gardening and farming as health and social care. *Mental Health and Social Inclusion*. 14(3), 14–22. DOI: 10.5042/mhsi.2010.0440.
- [117] Sisman, F. N., Kalaz, S. & Usta, A. (2020). The effect of a plant cultivating program conducted at a community mental health center on the functional remission of individuals with schizophrenia: A randomized controlled study. *Archives of Psychiatric Nursing*, 34(6), 459–466. DOI: 10.1016/j.apnu.2020.08.005.
- [118] Spaetgens, B., Brouns, S. H. & Schols, J. M. (2020). The post-acute and long-term care crisis in the aftermath of COVID-19: a Dutch perspective. *Journal of the American Medical Directors Association*, 21(8), 1171–1172. DOI: 10.1016/j.jamda.2020.06.045.

- [119] Speece, D. L. (1994). Cluster analysis in perspective. *Exceptionality*, 5(1), 31–44. DOI: 10.1207/s15327035ex0501_3.
- [120] Stock, P. V. & Brickell, C. (2013). Nature's good for you: Sir Truby King, Seacliff Asylum, and the greening of health care in New Zealand, 1889–1922. *Health & Place*, 22, 107–114. DOI: 10.1016/j.healthplace.2013.03.002.
- [121] Tempesta, T., Vecchiato, D., Nassivera, F., Bugatti, M. & Torquati, B. (2019). Consumers demand for social farming products: an analysis with discrete choice experiments. *Sustainability*, 11(23), 6742. DOI: 10.3390/su11236742.
- [122] Todorova, S. & Ikova, J. (2014). Multifunctional Agriculture: Social and Ecological impacts on the organic farms in Bulgaria. *Procedia Economics and Finance*, 9, 310–320. DOI: 10.1016/S2212-5671(14)00032-X.
- [123] Torquati, B., Paffarini, C., Tempesta, T. & Vecchiato, D. (2019a). Evaluating consumer perceptions of social farming through choice modelling. *Sustainable Production and Consumption*, 19, 238–246. DOI: 10.1016/j.spc.2019.04.005.
- [124] Torquati, B., Stefani, G., Massini, G., Cecchini, L., Chiorri, M. & Paffarini, C. (2019b). Social farming and work inclusion initiatives for adults with autism spectrum disorders: A pilot study. *NJAS-Wageningen Journal of Life Sciences*, 88, 10–20. DOI: 10.1016/j.njas.2019.02.001.
- [125] Torquati, B., Tancini, C., Paffarini, C. & Illuminati, R. (2015). Empirical survey on business models of kindergarten farms. *Agricultural and Food Economics*, 3, 25. DOI: 10.1186/s40100-015-0043-4.
- [126] Tulla, A. F. & Vera, A. (2019). Could social farming be a strategy to support food sovereignty in Europe? *Land*, 8(5), 78. DOI: 10.3390/land8050078.
- [127] Tulla, A. F., Vera, A., Badia, A., Guirado, C. & Valldeperas, N. (2014). Rural and regional development policies in Europe: Social farming in the common strategic framework (Horizon 2020). *Journal of Urban and Regional Analysis*, 6(1), 35. DOI: 10.37043/JURA.2014.6.1.3.
- [128] Tulla, A. F., Vera, A., Guirado, C. & Valldeperas, N. (2020). The return on investment in social farming: a strategy for sustainable rural development in rural Catalonia. *Sustainability*, 12(11), 4632. DOI: 10.3390/su12114632.
- [129] Van der Ploeg, J. D. & Marsden, T. (2008). *Unfolding webs: the dynamics of regional rural development*. Assen: Royal van Gorcum.
- [130] Van der Ploeg, J. D. & Roep, D. (2003). Multifunctionality and rural development: the actual situation in Europe. In van Huylenbroek, G. & Durand, G., eds., *Multifunctional agriculture: a new paradigm for European agriculture and rural development* (pp. 37–54). Assen: Royal van Gorcum.
- [131] Van Elsen, T., Günther, A. & Pedrolí, B. (2006). The contribution of care farms to landscapes of the future: a challenge of multifunctional agriculture. In Hassink, J. & van Dijk, M., eds., *Farming for Health* (pp. 91–100). Dordrecht: Springer.
- [132] Van Elsen, T., Reichardt, P. & Hüttmann, L. (2019). Der Mehrwert Sozialer Landwirtschaft-Perspektiven für Biobetriebe, Forschungs-und Entwicklungsbedarfe. In Mühlrath, D., Albrecht, J., Finckh, M. R., Hamm, U., Heß, J., Knierim, U. & Möller, D., eds., *Workshop im Rahmen der 15. Wissenschaftstagung Ökologischer Landbau, Kassel, 7. März 2019*. Universität Kassel.
- [133] Verbeek, H., Kane, R. A., Van Rossum, E. & Hamers, J. P. (2011). Promoting resilience in small-scale, homelike residential care settings for older people with dementia: Experiences from the Netherlands and the United States. In Resnick, B., Gwyther, L. & Roberto, K., eds., *Resilience in Aging*. Cham: Springer. DOI: 10.1007/978-3-030-04555-5_17.
- [134] Verbeek, H., Peisah, C., de Mendonca Lima, C. A., Rabheru, K. & Ayalon, L. (2021). Human rights to inclusive living and care for older people with mental health conditions. *The American Journal of Geriatric Psychiatry* 29(10), 1015–1020. DOI: 10.1016/j.jagp.2021.05.023.

- [135] Vik, J. & Farstad, M. (2009). Green care governance: between market, policy and intersecting social worlds. *Journal of Health Organization and Management* 23(5), 539–553. DOI: 10.1108/14777260910984023.
- [136] Vrontis, D., Morea, D., Basile, G., Bonacci, I. & Mazzitelli, A. (2021). Consequences of technology and social innovation on traditional business model. *Technological Forecasting and Social Change*, 170, 120877. DOI: 10.1016/j.techfore.2021.120877.
- [137] Wang, S., Yabes, J. G. & Chang C. H., (2021). Hybrid Density- and Partition-Based Clustering Algorithm for Data with Mixed-Type Variables. *Journal of Data Science*, 19(1), 15–36. DOI: 10.6339/21-JDS996.
- [138] Xiao, Y. & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, 39(1), 93–112. DOI: 10.1177/0739456X17723971.
- [139] Zasada, I. (2011). Multifunctional peri-urban agriculture – A review of societal demands and the provision of goods and services by farming. *Land Use Policy*, 28(4), 639–648. DOI: 10.1016/j.landusepol.2011.01.008.

Other sources

- [140] Maechler, M., Rousseeuw, P., Struyf, A., Hubert, M. & Hornik, K. (2022). Cluster Analysis Basics and Extensions. R package version 2.1.4. <https://CRAN.R-project.org/package=cluster>.