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The Care Farming Sector in The Netherlands: A Reflection on Its Developments and Promising Innovations

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Received: 3 April 2020; Accepted: 4 May 2020; Published: 7 May 2020



Abstract: This paper describes the development of care farming in the Netherlands, one of the pioneering countries in this sector, where care farming has developed into a very diverse sector, with some farmers focussing primarily on agricultural production and others more specifically on providing care services. Care farms are increasingly open to a diversity of participants. The sector has become professionalised with the establishment of strong regional organisations and a steady growth increase in revenues, providing employment opportunities and boosting the economy of rural areas. In this paper, we highlight two promising innovations in care farming: education for school dropouts and the establishment of social farming activities in cities. These innovations face the challenge of connecting not only the agricultural and care sectors, but also the educational sector and the urban context. Initiators face a number of challenges, like trying to embed their activities in the educational sector, a mismatch in regulations and a lack of legitimacy in the case of education on care farms, as well as problems gaining access to land and a lack of recognition in the case of social farming in urban areas. However, the prospects are promising in both cases, because they match the changing demands in Dutch society and are able to integrate social, ecological and economic benefits.

Keywords: care farm; social farming; innovation; education; urban farming

1. Introduction

Since World War II, European agriculture has changed significantly. To remain economically profitable, farmers have continuously increased the farms' size, efficiency and external inputs (e.g., pesticides), while minimising the labour use per hectare. Although that has made agriculture valuable from an economic perspective, it has also led to environmental problems, homogenisation of the landscape, outbreaks of animal diseases and poor animal welfare. This has had a negative effect on the reputation of the agricultural sector [1]. Growing concerns regarding nature conservation and the environment, as well as increasing demands from areas like housing and recreation, have put pressure on the sector [2]. In response, farmers started agricultural diversification in several European

rural areas [3]. In addition to producing food, they have begun to organise other activities to meet societal demands, including therapeutic services and services aimed at stimulating social inclusion ("care farming" or "social farming"), recreation and landscape services [4,5].

The main focus of this paper is on care farming or social farming as a promising example of the kind of multifunctional agriculture that is being developed in a number of European countries [4,6]. Care farming combines agricultural production with health-related, social and educational services [4]. As such, it is an innovation at the crossroads of agriculture, healthcare and social care. In addition, care farming is a response to concerns about public health expenditure and the efficacy of social services [6]. The agricultural sector provides care and support services to different types of client groups, or "participants", as care farmers call them: care farms offer adult day care services, supported workplaces and/or residential places for participants with a variety of needs and (psychological) difficulties or living far away from the labour market [7]. Participants are (actively) involved in diverse agricultural activities, depending on their needs and capacities.

The care farming sector has reached different stages of development across Europe. There are different orientations that can be identified [8]. In some countries, like Italy and France, care farming is aimed at labour integration, provided mainly by community-based organisations like social cooperatives. In other countries, like Germany and Ireland, care farms are mostly community-based care services provided by healthcare or social care organisations. In countries like the Netherlands, Norway and Belgium (Flanders), care farming is mainly provided by privately owned and run family farms [6–10]. While agricultural production is the primary function at several farms, others focus more on providing healthcare and social care services.

Care farms engage in a variety of different activities, including horticulture, livestock farming, green maintenance or forestry, but they also carry out other types of recreational or social activities, including painting or running a tea garden or restaurant [11]. Participants, care farmers and healthcare and social care professionals appreciate care farms for the combination of the personal attitude and commitment of the farmer, the fact that participants belong to the farming community, the informal context, the useful and diverse activities, the contact with animals and the green environment [11,12], while participants experience a sense of achievement and satisfaction, belonging, acceptance and meaningfulness. They feel valued, respected, stimulated and safe, and develop skills and social relationships. The perceived benefits of these mechanisms improve their physical, mental and social well-being [11].

The Netherlands is one of the pioneering countries when it comes to care farming [13,14]. Compared to other countries, the sector is well-developed, with regional and national collaboration structures of care farmers, and a diversity of care farming initiatives that are structurally embedded in society in general and in the healthcare and social care sectors in particular [13]. Since agriculture and healthcare and social care are specialised sectors that have drifted apart in the process of modernisation, rationalisation and specialisation after World War II [14], it is surprising that the care farming sector has been able to develop so successfully. Pioneers in the area faced major challenges in their attempts to collaborate with the care sector, because they lacked legitimacy and had no access to the care sector budgets. Nowadays, Dutch care farming is considered to be a dynamic sector, with an ongoing development of innovative services, proactively responding to changes in the societal context and new demands from society [14].

Entrepreneurial care farmers identified and created opportunities for new business opportunities and innovative services [14]. Examples include residential care for people with dementia, as an alternative to nursing homes [15], nature-based and farm-based care services in urban areas [16,17] and (more recently) educational services for school dropouts. The latter two innovations have thus far received little attention. Describing the dynamic character of the care farming sector and highlighting some promising innovations in the Netherlands, one of the pioneering countries in care farming, can help inspire other European countries where the care farming sector is less well-developed. As such, the aim of this paper is to describe the general development of the care farming sector

in the Netherlands, including its diversity and size, and in particular to specifically highlight the promising care farming innovations in urban areas and the educational service care farms provide to school dropouts.

Theoretical Considerations

To gain a better understanding of both innovations discussed in this paper, we approach them as new ways of creating value across system boundaries [18], a phenomenon that is increasingly recognised for its ability to foster sustainable transformation [19]. However, these types of innovations encounter specific challenges, including connecting different sectors with multiple sets of actors, rules, practices, logics, cultures and structures [19]. In addition, they face a lack of legitimacy, because they are newcomers in other sectors [13]. To gain legitimacy, they need to be innovative and provide a specific value that is not yet provided by existing organisations, while at the same time being trustworthy [20]. Committed, entrepreneurial boundary-spanners with a background in the sectors involved may be able to overcome such challenges [13]. While care farms faced the challenge of having to connect two distinct sectors (agriculture and care), the two innovations we discuss in this paper have to make additional connections. Care farms that offer education to school dropouts not only connect the agricultural sector to the healthcare sector, but to the educational sector as well. Care farms in urban areas face the challenge of having to position the agricultural and social care sectors within an urban context. To establish a structural connection to these new sectors, the capacity and agency of the actors involved is important in overcoming the challenges of developing new networks and, in these cases, dealing with the logics, rules, practices, cultures and structures of the educational sector and the urban context, respectively [13,19]. We use the notions of value creation, legitimacy and challenges, as well as the background and behaviour of the initiators to analyse the two innovations.

2. Methods

This paper uses findings from a variety of research projects in which one or more of the authors were involved. Because these research projects have not (all) appeared in scientific publications, and in order to provide transparency in terms of how this paper was developed, we briefly describe the methods used in these different projects. Students played a role in several of the projects that provide the basis for this paper, and they were all supervised by one or more of the authors. The names of the students are mentioned along with the projects in which they were involved.

2.1. Methods Used to Describe the Sector

To understand the development and current situation of the care farming sector in the Netherlands (Section 3.1), we used data from different sources: 1) the National Agricultural Census; 2) the database of the National Federation of Care Farms; and 3) expert meetings with representatives of the National Federation of Care Farms and the regional organisations of care farms. The National Agricultural Census registers farm and farmer characteristics. Farmers receive annual questionnaires, which every two or three years include questions on whether they engage in extended activities, like healthcare, social and educational services, making it possible to compare farms with care activities and farms without extended activities on a number of aspects: 1) the type of agricultural holding (five main types are distinguished: arable, horticulture, grassland-based, intensive livestock and mixed farms); 2) economic size, expressed in terms of standard income capacity, based on the input of labour and capital [21]; and 3) the age of the farmer. Although the methodology used in the National Census was changed in 2005, it has not been changed significantly since then. To compare the sector's initial situation to its current situation, we therefore used the data provided in 2005 and the most recent data (i.e., 2016). Unfortunately, the registration of farms has changed, and since 2013 it is no longer mandatory to register farms with limited agricultural economic activity. We used the National Agricultural Census (in combination with the spatial database of GIAB [22,23]) to calculate the spatial distribution of care farms for 2005 and 2016.

Whereas before 2011 all care farms were registered by the National Support Centre of Agriculture and Care, since 2011 only certified care farms are registered. This change took place after the national database of the National Support Centre was adopted by the Federation of Care Farms, which only registers care farms that are certified by the Federation, for which care farmers have to implement a quality system and provide an annual report describing how they handle issues like safety, client participation and education. The Federation also registers which client groups are welcome on the care farm.

2.2. Methods Used to Study Education at the Care Farm

The work presented with regard to education at care farms originates from 1) a national survey, 2) interviews with six care farmers and one regional organisation of care farms providing education, which also participated in the survey and 3) a research project from the Wageningen Science Shop in which multiple farmers offering education at care farms participated [24]. Both the survey and the interviews, as well as the Science Shop research project, tried to gain insight into the sector as such with regard to the number of educational farms and children enrolled, but also concerning the setup of educational programmes, the challenges that the care farms face and the added value and effects of education on care farms. The national survey was carried out by the first author of this paper. All regional care farm organisations were involved in this survey: representatives of these regional organisations asked their members to report whether or not they offered educational services. Those that indicated that they did then received a questionnaire. The topics of the national survey included the number and characteristics of the children, the characteristics of the education, the educational expertise present on the farm, collaboration with educational organisations and (perceived) barriers for providing education. To obtain more in-depth information about the challenges involved, six care farmers and the leader of the project "education on care farms", of the regional organisation most actively involved in education on care farms, were interviewed by a student, supervised by the first author of this paper. The selected farmers had indicated in the survey that they were interested in participating in an interview and were located all over the country.

Three of the authors were involved in the Science Shop project, where they supervised various master students who carried out individual or group projects on the topic, using interviews with twelve educational farmers, nine participating children (between 10 and 17 years old) and several other stakeholders (for instance two representatives from the municipality, two from schools and two parents), participatory observations on educational farms and creative methods like photo-voice. The reports provided by the students involved can be found elsewhere [24].

2.3. Methods Used to Study Social Farming in the City

The work presented on social farming in an urban environment comes from three different projects, all descriptive qualitative studies that focused on an urban farming initiative involving people with mental health problems, urban farming initiatives involving people with dementia living at home and urban farming initiatives focusing on citizen participation while providing social services to a wide range of urban residents, for instance unemployed people. As such, whereas the initiatives studied in the first two projects targeted well-defined client groups, the initiative in the third project aimed to combine local food production with stimulating participation and to support a broader group of "vulnerable" people in an urban environment.

All three projects used interviews as their main method: 14 initiators of the urban farming initiatives were interviewed, as well as 43 participants. The interviews involving the initiators focused on their motivation to start and participate in the activities, the benefits for the participants and challenges with regard to setting up and sustaining the initiative. The interviews with the participants focused on the value of participating in the farming activities. In the case of people with dementia, the primary care givers, usually the partners, were also interviewed. To identify and contact social farming initiatives, the first author of this paper contacted the national network of urban farming

initiatives. Contacts of urban farming networks in the cities of Amsterdam, Rotterdam, Den Haag, Utrecht, Haarlem, Arnhem and Nijmegen responded to the request to provide information about urban farms engaged in social activities. In each city, we first contacted two or three urban farms that provide care services to people with mental health problems and/or people with dementia living at home. For the third project, we contacted urban farming initiatives in the cities of Amsterdam, Rotterdam and Arnhem, which are open to a wide range of people and have a clear interest in providing social services. In the second study, different types of nature-based initiatives were studied, ranging from nursing homes opening their garden to community gardens set up by citizens and city farms initiated by social entrepreneurs [16,17]. In this paper, however, only the initiatives combining agricultural production and care are described. Table 1 provides an overview of the location of the urban social farms under study, the types of people participating in the initiatives and the number and types of participants who were interviewed.

Table 1. Location of urban social farms, type of participants present (+) in the urban social farm and number of participants interviewed (between brackets).

Urban Farm	Participants with Mental Health Problems	Participants with Dementia	Other Vulnerable Citizens
Utrecht 1	+ (4)	+	+ (3)
Arnhem 1	+ (4)	+ (4)	
Amsterdam 1	+ (10)		
Den Haag 1	+ (2)		+
Nijmegen 1	+ (2)		+
Haarlem 1		+ (2)	
Nijmegen 2		+ (4)	
Arnhem 2	+ (2)		+ (6)
Arnhem 3	+		+
Amsterdam 2	+		+
Amsterdam 3	+		+
Amsterdam 4	+		+
Rotterdam 1	+		+
Rotterdam 2	+		+

2.4. Data Analysis

To analyse the results of both innovations, we performed a secondary data analysis of the different studies in the form of a thematic analysis using a deductive approach. We had direct access to the original data from the interviews. The original transcripts from the interviews were read and reread. In each of the studies, at least two of the authors analysed the transcripts. In our data analysis, we followed the main themes, which we agreed in advance: i) characteristics of the initiative, initiator and participants, ii) value/values created by the initiative and iii) challenges encountered.

3. The Dutch Care Farming Sector

3.1. General Development

In the Netherlands, the first care farming initiatives were set up in the 1960s and 1970s, mainly by enthusiastic pioneers from the care sector. The first care farms initiated by farmers themselves emerged at the end of the 20th century. At that time, there were no financing and support structures. Later, support from the Ministries of Agriculture and Health, Welfare and Sports resulted in the establishment of the National Support Centre of Agriculture and Care [14]. The activities of the Support Centre stimulated networking among care farmers and between farmers and care organisations, and increased the legitimacy of care farming. In combination with changes in regulations regarding the financing of care services, it became easier for care farmers to get started. Since 2003, care farmers benefitted from a broad availability of personal budgets for participants (Dutch acronym: “PGBs”),

enabling care farms to draw up direct contracts with people in different client groups. PGBs became available under pressure from the client movement. These changes encouraged new types of initiators to enter the care farming sector, like (former) employees of the care sector who were dissatisfied with the bureaucratisation of care and the limited time they were able to spend with their participants. In addition, since then, a growing number of care organisations have shown an interest in working with care farmers [14].

Another important development had to do with neoliberal reforms: the liberalisation of the healthcare sector opened up the sector to new care suppliers, which enabled regional organisations of care farms to secure a healthcare accreditation and become official care organisations, giving them access to budgets of health insurance companies. Due to the support of the regional organisations of care farms, care farming families who lacked the entrepreneurial skills required in the pioneering phase also started setting up care farms. The number of care farms increased rapidly, from 75 in 1998 to 1100 in 2011 [25]. In 2015, social care funding was decentralised with the introduction of the Social Support Act, ensuring that municipalities provide the appropriate support for people who are in need of support to take part in society and live independently [26]. Since then, care farmers and regional care farm organisations face the challenge of having to secure contracts with all the municipalities where their participants live.

To summarise, the care farming sector developed in large part thanks the entrepreneurial and coordinated behaviour of care farmers and their regional and national organisations, using the opportunities provided by structural changes in the care sector and framing care farming as an appealing community-oriented alternative to institutionalised care services and a promising perspective for farmers who were interested in multifunctional farming [14]. As indicated, since 2013, a valid registration of the number and characteristics of care farms is lacking. The most recent data published in the scientific literature dates from 2009. To fill that gap, we have combined data from different sources to estimate the actual number of care farms and their characteristics.

3.2. Number of Care Farms

The total number of Dutch care farms was estimated to be 1250 in 2018 (Table 2), based on a number of considerations. Firstly, according to the National Agricultural Census, the number of care farms grew until 2011 and was reduced since then, especially between 2013 and 2016. However, the change in the registration of farms (see the methods section) may help explain that reduction [27]. According to the Federation of Care Farms (based on expert knowledge from different regional organisations and an analysis of their data), half of their members no longer register in the National Agricultural Census, due to their limited agricultural economic activity. Secondly, the number of care farms registered and certified by the Federation of Care Farms has remained stable between 2011 and 2018, at around 800 care farms. However, it is important to note that, since 2011, only certified care farms are registered by the Federation. Thirdly, experts of regional organisations estimated that approximately 450 care farms are not members of one of the regional organisations or the Federation [27].

Table 2. Development of total number of care farms according to different sources (based on [27]).

Number of Care Farms	2005	2007	2009	2011	2013	2016	2018
Agricultural census	524	605	707	931	874	614	
Care farms certified by the Federation				789	750		820
Estimated by experts		756	870	1050	1100		1250

3.3. Characteristics of Care Farms

Information on the characteristics of care farms can only be found in the data of the National Agricultural Census, with no relevant information being included in the database of the Federation. As mentioned above, that database only includes care farms with sufficient agricultural economic

activity. To illustrate changes in their characteristics, we compared the data from 2005 and 2016. Most care farms were grassland-based farms (Table 3), and most grassland-based farms were dairy farms. The number of grassland-based care farms increased between 2005 and 2016, unlike the other farm types.

Table 3. Number of care farms per farm type.

	2005	2016	Difference	%
Arable	29	32	3	+10%
Horticulture	72	46	−26	-36%
Grassland-based	327	439	112	+34%
Intensive livestock	43	40	−3	−7%
Mixed	53	57	4	+8%
Total	**524**	**614**	**90**	**+17%**

Generally speaking, care farms had the same economic size as conventional farms, which increased between 2005 and 2016, although to a lesser extent for care farms compared to conventional farms (Table 4). The calculation of the economic size only takes into account the turnover from agricultural activities. It does not include the turnover from care activities. Moreover, generally speaking, the farmers running care farms were younger than those of conventional farms, both in 2005 and in 2016, a period in which the average age increased for both care farmers and conventional farmers. Differences between care farms and conventional farms decreased. The average number of regular workers (working more than twenty hours a week, including farmer and family members) was higher on care farms than on conventional farms of different types, although the number decreased between 2005 and 2016. In 2005, the percentage of farms offering care services was highest in the centre and in some northern and southern parts of the country (the least densely populated areas). The strongest growth in the percentage of farms offering care services was found in the most densely populated areas of the Netherlands, around the cities of Amsterdam, Rotterdam and Utrecht.

Table 4. Average economic size, age of farmer and number of regular workers on grassland-based conventional and care farms in 2005 and 2016.

	Conv. Farm 2005	Conv. Farm 2016	Care Farm 2005	Care Farm 2016
Economic size (standard income capacity)	31	76	37	69
Age of farmer	54.5	54.8	48.5	52.3
Number of regular workers	1.5	0.9	2.3	1.7

3.4. Type of Participants

Care farms registered by the National Federation of Care Farms indicated which types of participants are welcome at their farms. Initially, many care farms focused primarily on people with intellectual disabilities, as this group could help out at the farm. Care farms were considered less suitable for other types of participants due their complex conditions. However, the diversity of participants increased over the years. The number of care farms that are open to people with mental health problems, youths and older people (with dementia) increased considerably (Table 5).

Table 5. Percentage of care farms open to a specific group of participants.

Year	% of Care Farms Open to a Specific Group of Participants			
	Intellectual Disabilities	Mental Health Problems	Youth	Older People
2005	67	39	22	11
2009	53	39	32	24
2018	69	60	43	43

3.5. Revenues

Experts indicated that the revenue per farm has increased considerably due to professionalisation, specialisation and an increase in the number of participants per farm. Moreover, an increasing number of care farms provide residential care, in addition to day care activities. The annual revenues of the main regional care farm organisations have increased considerably, from €11.3 million in 2011 to €88.6 million in 2018 (Table 6). The revenues of the regional organisations are based on their contracts with municipalities and insurance companies for all their associated care farms. The overall annual revenues of the regional organisations are lower than those of the total care farming sector, because not all care farmers are members of a regional organisation. Instead, those farmers use the personal budgets of their participants and have their own contracts with other accredited care organisations, municipalities or insurance companies. Based on the data of their member care farmers, the experts of the regional organisations estimated the total revenues for the care farming sector (including farms that are not affiliated with any organisation) to be €250 million annually. Based on this estimation, the average revenues for care services per farm increased from €87,500 in 2013 to €200,000 in 2018.

Table 6. Annual revenues for care services of regional organisations of care farms, the care farming sector and individual care farms (average; n.a. = data not available).

Revenues (€)	2007	2009	2011	2013	2018
Per farm	60,000	72,500	75,000	87,500	200,000
All regional organisations	n.a.	n.a.	€11.3 million	€24.5 million	€88.6 million
Total sector	€45 million	€63 million	€80 million	€95 million	€250 million

4. Innovations

In this section, we highlight two promising innovations in the care farming sector that so far have received little attention: education in care farms and social farming in urban areas. These innovations illustrate the broadening of social services in care farms and the growth of care farming activities in more densely populated areas, where most potential participants live. They both combine agriculture and care and embed them in another domain. For care farms that provide education to school dropouts, the challenge is to become embedded in the educational sector, while care farms operating in urban areas have to succeed in connecting the agricultural and social care sectors to the urban context.

4.1. Education at the Care Farm

The number of children dropping out of school is a major concern in Dutch society. The number of dropouts has increased from just over 3200 in 2014 to almost 4800 in 2019 [28]. Various partners have expressed the ambition to reduce that number to 0. Many dropouts face internalising and externalising behavioural problems, problems at home and stress in different areas of their lives [29]. Many of them would benefit from a combination of education and care. A major challenge is the fact that the education and care domains are not well connected [28]. An increasing number of schools and parents approach care farmers to see if they could offer education to children that drop out or are at risk of dropping out of school. Not only do these farms provide a potentially good care environment, they can also offer a good alternative educational environment for children who face serious problems within the regular school context. This type of education at a farm should be distinguished from excursions to, or lectures at, a farm for regular school classes. In this paper, we define educational farms as providing long-term education in a non-school farm setting with the aim of reintegrating youngsters into the regular school system [30].

4.1.1. Characteristics of Education on Farms

Out of the 54 care farmers who claimed to provide education, 41 took part in our survey. Most farms started providing education in the last five years. In most cases, the care farmers were approached by

parents or schools with a request to provide support to children dropping out of school. The farmers were convinced that merely providing care to these children would solve only half the problem, and that most children would benefit from receiving an education as well. The first educational farms started in 2000. Between June 2018 and June 2019, 409 children received an education on one of the 41 farms, representing almost 10% of the total number of dropouts. The children are between 4 and 20 years of age. Most farms provide education to children in both the primary and secondary school age range. Approximately 50% of the children come from primary schools: 20% from ordinary schools and 30% from special education. The same distribution holds for children from secondary schools. Most of the respondents have connections with various schools, regional organisations for specific educational support and municipalities. Some also informed the inspection, but most are reluctant to do, as they are afraid that the inspection will not permit the education to take place in the farm.

The reasons why the children leave school vary: they are diagnosed with several types of autism, Attention Deficit Hyperactivity Disorder (ADHD) or Oppositional Defiant Disorder, they are traumatised after being bullied, they have suffered the divorce of their parents or the loss of a loved one, or have attachment disorders or anxiety issues—and often a combination of these problems. Schools, municipalities or, in some cases, the parents refer the children to the farms. The number of children in an individual farm ranges from 1 to 30, and most farms provide education to 2 to 5 children. The number of learning hours varies from one hour a day to 80% of the time spent on the farm. In most farms (75%), the education is provided by qualified teachers, who are usually employed by the care farms themselves. In some cases, the farmers themselves used to be school teachers. Education is provided in different ways. Most farms combine individual education and group work, using educational materials from the schools of the respective pupils: in some cases, the teachers involved develop their own teaching materials. Other farms are not involved in educational activities as such, but provide the (literal) space where school teachers can educate the pupils, with the farmer providing the care activities. In most cases, schools remain responsible for the education and the aim is for the children to return to school. Most farmers indicate that the specific benefits of providing education in care farms include the individual attention to children, providing safety and trust, offering a combination of education and other practical activities, positive experiences and support on the farm and allowing the children to interact with animals. Most farmers indicate that children experience success on the farm, become open to education and gain a better perspective for the future. However, a return to school is not always possible or desirable due to the very complex problems of some children.

4.1.2. Challenges

Farmers who completed the survey indicated that financing the education they provide on the farm is one of the main challenges. In some cases, schools and regional collaboration organisations for specific educational support provide the necessary funding, but that is not always the case. Sometimes, municipalities provide temporary funding. In addition to funding, other bottlenecks include a lack of recognition, the existing regulations of the educational system and a lack of flexibility on the part of inspection officers. Existing regulations state that education may only be provided at formal education locations [31], while existing policies continue to draw a clear distinction between care and education. Funding was listed as the main challenge in interviews with the farmers as well, indicating that municipalities and educational organisations often refuse to provide financing for the education on the farm, arguing that it is not in line with regulations. The farmers also indicated that educational organisations are unaware of the possibilities for education on care farms and even have a negative image of care farms. The farmers indicated that some educational organisations have the impression that care farms do not contribute to the development of children and their return to school, but instead focus on providing care and stabilising the current situation. Some farmers suggested that the name care farm is counterproductive for providing education. Because funds are hard to come by, it is also difficult to hire and retain professionals with educational expertise.

4.1.3. Approach and Experiences on Two Farms

As part of the Science Shop project, student Lana Plug studied two farms in more detail, enabling a closer look at what education at the farm entails in practice (Table 7). While the two programmes outlined in the table show several similarities, there are large differences in how the education is set up. At the first farm, education is provided in a small room to one or two pupils at the same time. The teacher makes the assignments together with the pupil: there is ample interaction and personal attention. At the second farm, pupils are taught in groups of five to thirteen pupils, while they work independently on their assignments. The teacher helps with the planning and grading. The farmer chose this approach to connect to real life, where children also have to work individually. Children at both farms stated that they were happy with the way the education was organised.

Table 7. Characteristics of two different education farms.

Educational Setup	Educational Farm 1	Educational Farm 2
Start and end time	8:30–9:30–15:00 (Wednesday + Friday until noon)	9:30–13:30 (Wednesday + Friday until noon)
Number of pupils receiving education simultaneously	1 or 2 out of 6 children (mostly one on one), older children join care activities	5 to 13 out of 13 children, part is in care group
Number of teachers and qualifications	1 qualified teacher + 1 supervisor	2 qualified teachers, care farmer involved in return-to-school trajectory
Learning materials	From the child's school	From the child's school
Tasks in animal care	Every day, divided by supervisors	Every day, picked by children
Educational moments per day	Two times half an hour (some children less)	Two times an hour (some children less)
Animal Assisted Interventions	Horses and other animals: caring and relaxing, no therapy	Horses and other animals: caring, relaxing, therapy sessions with learning goals

Both farms use animals in their educational programmes and both farms focus on basic skills like maths, writing and reading, so that the children can keep up with their classmates from school as much as possible. However, in some cases children have such problematic school experiences that it is a major accomplishment if the child manages to accomplish a few small assignments. In that case, stimulating a learning attitude is an important goal. The farms focus on keeping up with the individual pace of the pupil, starting from the child's skills and creating personalised learning paths tailored to their needs, abilities and capacities. At both farms, children report multiple outcomes, ranging from a feeling of belonging, feeling happy and calm, being less angry, showing improved prosocial behaviour and feeling understood by others to an improved attitude towards education (learning). The mechanisms considered to be accountable for these perceived outcomes are, among other things, the opportunity and freedom to learn in one's own space, the peaceful environment at the farm and the opportunity to challenge and overcome one's limits.

4.2. Social Farming in the City

The second innovation is the development of social farming in an urban environment, which is an interesting example of urban agriculture, defined as the production of crops and livestock within cities and towns [32]. Urban agriculture can fulfil several social objectives, has the potential to stimulate social development and community cohesion [33] and can provide a way to tackle various environmental, social and health-related challenges [34]. Like care farming in rural areas, urban agriculture is an expression of changing values in society [35]. Urban agriculture is an interesting development, because it involves urban citizens in local food production and contributes to social objectives like social cohesion [36]. The number and diversity of urban agriculture initiatives is increasing rapidly. Due to the high costs of transport and the rising costs of healthcare services, municipalities stimulate participants to look for social care services closer to where they live, especially since in 2015 municipalities were financially responsible for supporting their (vulnerable) citizens. Care farms are usually situated in rural areas, whereas the majority of their potential participants live in cities. A straightforward solution to this discrepancy is to transform urban agriculture initiatives, like city farms and community gardens,

into social farms. In different cities, citizens and social entrepreneurs have initiated care activities for people with dementia in city farms and community gardens [16,17]. Urban farming can increase the participation, health and well-being of vulnerable urban citizens, including people with mental problems [37].

4.2.1. Characteristics of Initiatives and Initiators

The initiatives included in our three studies were mainly started by enthusiastic social entrepreneurs, sometimes in collaboration with social care organisations. Their motivation was to combine food production in a sustainable way with social services and the integration and participation of vulnerable urban citizens. Activities included gardening, preparing meals and taking care of farm animals. The initiators of the social farming initiatives in urban environments for people with mental health problems and dementia had a background in healthcare or hired employees with a background in healthcare. Their ambition was to provide good care by employing professionals with expertise in the care sector, supported by volunteers. These initiatives managed to obtain contracts with health insurance companies, municipalities and accredited care organisations for the provision of social care services. The initiators of the initiatives for a broad group of vulnerable citizens had diverse backgrounds, like retired citizens and artists. Their objective was to integrate agricultural activities and food production with social services, without becoming a "care project". The basis of these initiatives was voluntary work. Most of them were financially supported by the municipalities in their initiation phases and had no formal contract for providing care services.

4.2.2. Values

Interview data showed that the participants of the initiatives in all three studies appreciate the meaningful, physical, varied and concrete activities being provided, as well as being outside, the space and tranquillity of the green environment, the social and friendly atmosphere, the interaction with other people and the opportunities to learn about, and experience, growing vegetables and healthy food. Several people indicated how important it is to be outside and in contact with nature. Respondents stated that being involved in urban farming promotes their health and well-being. Participants with mental health problems or who are unemployed indicate that their physical and psychological health improved and that they developed social contacts and social and work-related skills as a result of their participation in urban farming activities. People with dementia appreciate the contact with animals and nature, as they like to be active and participate in activities. Both people with dementia and family carers appreciate the fact that people with dementia can choose what they like to do. Especially younger people with dementia argue that it is important and satisfying to do meaningful work. Family carers of people with dementia express that the involvement of their partner with dementia in urban farming improved their appetite, led to a more active behaviour and increased happiness, which is in line with what has been described before [17].

The initiators of the urban farms for a broad group of vulnerable citizens highlighted the informal atmosphere, where people have an added structure to their days, learn about healthy food and are given the opportunity to meet and socialise with people from different cultural and social backgrounds. They give people the opportunity to participate in society instead of staying at home or hanging out on the streets because they are unemployed. Other services provided by these initiatives are education for children and youngsters, language courses for refugees and the production of healthy vegetables for the food bank. The initiators stressed that, due to their broad range of activities, they generate a considerable social impact at a relatively low cost.

4.2.3. Challenges

When starting up, many initiatives considered the difficulty of finding a suitable and stable location to be a major challenge. Some initiatives managed to find a temporary location when, due to the economic crisis, building projects were delayed and green spaces became available. Some of these

initiatives were forced to leave these locations when the economy started growing again and building projects were started up again. Several initiators of social farming in urban environments for people with mental health problems and dementia use green locations that were already in use by other groups (e.g., neighbours who started their own community garden), which in some cases limits the possibilities to use the green location for specific client groups. Another challenge involves trying to connect to the large number of organisations and initiatives that are relevant to their activities and open for collaboration and support, like local welfare organisations, schools and municipal agencies for the local environment and environmental education.

The lack of appreciation and recognition from municipalities is another challenge. Initiators stated that civil servants often fail to recognize the value of their activities. Sometimes it is hard to know who to contact in the municipality; and sometimes the person contacted has many other obligations or is more interested in other topics.

Another challenge, mentioned in particular by the initiators of social farming in urban environments for a broad group of citizens, concerns the complex rules and regulations regarding support or subsidies. In addition, the rules tend to change every four years, after each election cycle. Some people do not know which subsidies they are eligible for or how to fill out applications. Initiatives must meet specific requirements to be eligible for subsidies or other funding. Some initiatives indicated that the rules and regulations concerning urban farming and the provision of social services are becoming increasingly challenging. They are accompanied by lots of administrative and other requirements, and municipalities increasingly request a proof of impact.

A final challenge is mentioned in particular by initiatives looking for funding for the care services they provide. They focus on providing care services that meet the formal requirements of the municipalities, and they also have the expertise and employees to deal with formal requirements like the evaluation of the progress of the participants. However, while they manage to deal with all formal requirements, they complain about strict regulations that do not match their more integrated services, as well as the budget cuts in the social domain.

Table 8 provides an overview of the values, types of initiators and challenges of education at care farms and the two types of social urban farms.

Table 8. Overview of values, initiators and challenges of different types of innovations.

	Education at Care Farms	**Urban Farm with Focus on Social Care**	**Urban Farm with Social Services**
Values	Tailored education at own speed Combination of care, activities and education Space Animals	Service and support close to home Informal Participation Nature Social contacts Contact with animals Meaningful activities	Service and support close to home Informal Participation Nature Intercultural Education Healthy food Useful activities
Initiators	Care farmers with educational background or expertise	Social entrepreneur, background in healthcare	Volunteers like retired citizens Artists
Challenges	Obstructing regulations of the educational sector Problems in combining finances of care and education sector Lack of legitimacy	Insufficient space at location Lack of communication with municipality Budget cuts	Difficulties in finding permanent location Complicated formal requirements Lack of funding Lack of recognition by municipality Bureaucracy

5. Discussion

The data presented in this paper shows that the care farming sector in the Netherlands is a quickly developing and very diverse sector, offering innovative social services to a wide range of people. Although there is no single database incorporating all the initiatives, the data that is available indicates that two main types of care farms have developed. One consists of agriculturally-oriented care farms,

where the main activity is farming and the number of participants is limited. These care farms are registered in the National Agricultural Census. The other group consists of care farms with limited agricultural activities, higher numbers of participants and substantial income derived from care services. Our finding that the estimated average care revenues increased considerably over the last decade, to an average of €200,000 annually, shows that an increasing number of care farms specialises in providing care. Those care farms also employ more and more staff. In fact, care farming is the fastest growing branch of multifunctional agriculture in the Netherlands [27]. This is an indication of an increasing discontinuity between care farms focussing on agricultural production and care farms focussing on care.

Care farms are open to a very diverse population. People appreciate the social atmosphere, the diverse activities, being outside and coming into contact with animals and with nature. People from different backgrounds value the support and the sense of achievement, fulfilment and belonging that care farms provide [11]. The legitimacy of care farming has increased, resulting in new entrants, mainly with a background in healthcare, which in turn made care farms more embedded in the healthcare sector. Care farms are now recognised as community-oriented entrepreneurial services that contribute to the socialisation of care and the empowerment and participation of participants [12], contributing to overcome recent challenges and changing demands in society, like the socialisation of care, multifunctional agriculture and alternative sources of income for farmers. The innovations described in this paper appear to offer values that are similar to those provided by care farms. The mixture of social and nature-based values, in combination with practical and useful activities involving plants and animals, can generate an informal, welcoming context in which a variety of people can participate.

The innovative character of the care farming sector is illustrated by the two innovations described in this paper. They are good examples of the care farming sector's openness to new types of social services, client groups and contexts, and they show that care farmers, social entrepreneurs and urban citizens are willing to enter new arenas in response to changing demands in society. By broadening their scope, care farms can help meet other societal challenges, including trying to reduce the number of school dropouts and contributing to the ideal of a healthy urban environment that has room for all citizens and that is supportive and responsive to their diverse needs [38]. Our research shows mostly positive experiences with education on care farms and social urban farming. International examples provide support for the education on care farms for school dropouts and report positive experiences with this type of education [39–41], indicating that urban farms provide social services like education and healthcare that strengthen social networks and enhance social support [42,43]. The variety of activities within urban farm initiatives, like working on the land and preparing food, allows different age groups, different cultures and people from different socioeconomic backgrounds to interact with each other in an informal manner [42].

The initiators of the various care farming initiatives that participated in our research face considerable challenges when it comes to sustaining their initiatives. They follow in the footsteps of the pioneers of the care farming sector, facing specific challenges that have already been solved for the more average care farmers. For instance, care farmers who provide education face a lack of recognition and have to deal with regulations and financing structures that are not aligned with the combination of care and education, which have developed as separate sectors, with separate regulations that often do not match the needs of children who drop out of school. Regulations in education appear to be very strict, challenging the combination of education and care on a farm in a way that reminds us of the original care farmers' lack of legitimacy and access to budgets from the care sector. Some farmers indicated that the name "care farm" is counterproductive for providing education. It would be interesting to explore whether care farms that specialise in education could benefit from using the name "education farm" rather than "care farm". Similarly, the opportunities and constraints of providing both traditional care for people with disabilities and education for children with additional needs at the same farm should be investigated. Pioneers starting care farms in urban environments have to deal with the limited

availability of suitable locations. In addition, those who do not focus on providing professional care find it hard to meet the requirements to obtain funding and support, as the broad range of services they provide does not meet the more domain-oriented support instruments. The innovations highlighted in this paper show that setting up systematic interactions is a challenge, because pioneers have to deal with multiple actors, rules, practices, cultures and structures [19], making it harder to gain recognition and legitimacy, to enter educational and urban networks, to obtain funding for their services and to deal with the challenge of complicated regulations that make it harder to provide education within a farming environment. As such, future studies could focus on developing a best-practice framework to upscale education on care farms and care farms in urban environments.

For both innovations, the prospects are positive, however. Policy-makers are beginning to realize that the focus should be on what children need and that the regulations involving care and education (and the way they can be combined) have to change in cases where they stand in the way of providing valuable support [44]. The establishment of care farm services in urban areas will benefit from the fact that most people in need of support live in cities and from policies that focus increasingly on providing support as close to home as possible—especially since the decentralisation of the healthcare sector in 2015, and because current budget cuts make it harder to transport people to farms in the country. These chances are in line with the recognition that boundary-spanning innovations are crucial instruments to tackle grand societal challenges, like the high number of school dropouts, and the inequalities in terms of healthcare between people from different socioeconomic backgrounds [19]. The initiatives also benefit from the increasing realisation that increased citizen participation is needed for the future of our social sector [45]. Furthermore, society appears to have entered a mental process whereby the value of productive green urban spaces is being reconsidered [46]. There is growing empirical evidence that being close to nature has a positive impact on our health and well-being, which means that the benefits are physical as well as mental [47,48]: it may lead to reduced stress, increased social contact and more physical activity [49]. Vulnerable groups, in particular, like young children and the elderly, appear to benefit from having access to a green environment [50,51] In line with this trend, urban agriculture attracts many and diverse organisations and urban citizens: supportive organisations have emerged in a number of cities. A few dedicated researchers, policy-makers and entrepreneurs have initiated a national network of cities experimenting with urban agriculture. Currently, there is increased attention to linking nature-based initiatives, for instance in the form of urban agriculture with educational, healthcare-related and social services, and quantifying the economic and social impact of urban agriculture [52], which is in line with the growing interest in community-supported types of agriculture that involve citizens in new types of local food production [53,54].

While the innovations described in this paper are still in a pioneering phase and the initiators are struggling with a variety of challenges, our paper shows that social farming in urban areas and the opening of farms to children who have dropped out of school can be beneficial to the health and well-being of different groups of vulnerable people, which in turn implies that the development of care farming can benefit from linking nature-based products and services to objectives and problems in other sectors, like education or urban care. This is important not only for care farming itself: successful multifunctional agricultural practices—including care farming—are also important for the development of the agricultural sector and rural areas, and for their connection to an increasingly urbanised society. The innovations described in this paper can provide social, ecological and economic benefits for society as a whole [52,54]. As such, we would argue that it is worthwhile to take a closer look at these innovations and at the dynamic care farming sector, and to explore the opportunities they provide and the types of actions needed to promote their contribution to the diversity of societal objectives, including the creation of inclusive, healthy, sustainable and green cities in general, and the development and well-being of vulnerable groups of people in particular.

Author Contributions: J.H, E.J.V, R.P. and S.R.d.B. analysed the data and conceived the paper. H.A. and H.A.B.v.d.M. provided data. J.H., E.J.V., R.P., S.R.d.B. and L.B.P. participated in the innovation projects. All authors have read and agreed to the published version of the manuscript.

Acknowledgments: We like to thank the master students, Paola v.d. Pauw and Amber Nobel, for their contribution in conducting the interviews.

Conflicts of Interest: Authors declare no conflicts of interest.

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