

Article

Why I Would Want to Live in the Village If I Was Not Interested in Cultivating the Plot? A Study of Home Gardening in Rural Czechia

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Abstract: Unsustainable food practices in the global North have brought a lot of attention to the concept of alternative food networks. However, prevailing research perspectives have focused on urban areas or market-related activities and tended to overlook the widespread yet neglected food growing in home gardens, especially in rural areas. This paper uses a mixed method approach to study home gardening in two villages in Czechia, focusing on the state of the art of gardening, its sustainability context, and the perception of gardening by the local citizens. We have found that the vast majority of households grow fruit and vegetables, while livestock is also present. Home grown food, which has a supplemental character, is mostly shared within networks of relatives. An understanding of food production as a part of rural identity and tradition is an important element of the perception of gardening. Our findings contribute to the rich debates about the sustainability of food systems. The paper is innovative because it steps outside of the typical poverty or food security discourse of rural informal food production, as well it reveals information on livestock breeding, discusses home gardening in the context of rural development and food policies, and emancipates the semi-peripheral locality as a regular source of new knowledge.

Keywords: alternative food networks; diverse economies; food self-provisioning; garden; post-socialist; rural development; rurality; sustainability



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1. Introduction

Recent trends in urbanisation, climate change, malnourishment, loss of biodiversity, land use changes, and most recently, the COVID-19 pandemic have brought wide attention to agriculture, food production, and distribution [1–4]. Various research disciplines, including geography, sociology, economics, political ecology, and environmental studies have investigated different aspects of the human–food connection to better understand the context and potential of sustainable food production and the embeddedness of food within society [5–8]. The stream of academic research that is critical towards the negative impacts of conventional industrialized commercial agriculture in the global North, pays attention to urban agriculture or alternative food networks [9–11] with popular topics such as community gardens, vertical farms, farmers' markets, box distribution schemes, edible cities, and other social innovations [12–15]. However, these phenomena are also criticized for being part of gentrification and having a lack of social inclusivity and limited opportunities for upscaling [16,17].

In contrast to these popular topics, practices such as home or allotment gardening, which are common and well-established in many global North countries or regions [18–21], are less investigated despite the growing interest in the last decade [22]. In this paper, the

term “home gardening” is defined as production of food in a garden by people who are not professional farmers and for whom gardening is not their main source of income; the terms “food self-provisioning” or “informal food production” are also used in the literature. Home food production, both urban and rural, has been researched and interpreted within various frameworks, including economic motivation and food security [23,24], environmental aspects [25,26], food sovereignty [27], unintentional sustainability [19], and metabolic rift [25]. Often, it is interpreted as a complex activity driven by cultural as well as economic and other motives [28–30].

It is estimated that, globally, 45% of people live in rural areas, and the number is 26% in Europe [31]. Despite the lower number of rural citizens and their relatively low level of employment in agriculture in global North countries, rural areas still cover the majority of land in most countries and are home to most of the agricultural production. Thus, rural areas are seen mostly through the lens of commercial farming and are presented, especially in the productivist logic, as sources of food and fibre [32], or in the context of alternative food networks related to farming. However, other sources of food production, such as home gardening in rural areas, have been largely neglected in the scientific discussion as compared with urban gardening. This has been happening despite the fact that home gardening is more widespread in rural areas than in urban ones [20] and has an important social [33], cultural [28], and environmental [34] context. The persisting perception of rural areas as typically agricultural spaces defined by higher poverty and social exclusion risks (supported by Eurostat [35] data) also significantly shapes the research on informal nonprofessional food production (including home gardening) in the countryside. Such an approach has been employed in many countries, including European countries and the USA [24,36,37].

However, inspired by sustainability-oriented research approaches [19,25], our mixed method research asked respondents from two Czech villages to portray a complex and contextual picture of home gardening. Given the state of the art of the research (see also the literature review in Section 2), we defined the following three major research topics: (i) the current state of home gardening in rural areas (share of gardeners, type of foods grown and livestock bred, and motivations); (ii) its sustainability context (environmental, economic, and social aspects); and (iii) a wider perspective of home gardening (including future outlook and relations of gardening to rural development).

Employing a questionnaire method, supported by interviews and observations, our research presents a relatively complex picture of home gardening in two villages, in which gardeners themselves express their understanding of their activities. By using this approach, we aim to add to the under-researched field of nonprofessional home gardening in rural areas of global North countries. The topic of our research fits well into the non-capitalist “diverse economies” concept [38] of a supposedly marginal activity which is in fact relatively common but is often neglected (or even seen negatively) by mainstream social science research and official policies. Researching home gardening in rural areas, thus, brings new knowledge into the field, stresses its importance in the rural context, and makes the object visible for politics and policies, and therefore lends credibility to home gardening and gardeners’ perspectives (ibid).

While focusing on three research topics and aiming to portray a complex picture of a rural home gardening case study, this paper cannot be subsumed under one conceptual approach or theory. The practices and perspectives of respondents, which reveal the range and understanding of rural home gardening, are put in the context of unintentional “quiet sustainability” [19] or “traditional” and “new” alternative food networks in Central and Eastern Europe (CEE) [39]. Then, the findings that reveal the importance of gardening are discussed from the perspective of the relationships among rural home gardening, rural development, and food policies. The respondents’ perceived importance of gardening and its connections to rural lifestyle stand in contrast to the ignorance of this phenomenon in policymaking and official Czech, as well as EU documents [40–42]. On the basis of our findings, we argue for policy attention to be paid to rural home gardening.

Our paper is embedded in the specific triple “semi-peripheral” conditions which allow us to contribute to several topics of the current food and rural sociology debates. First, the research site lies in Czechia, a post-socialist country which, despite being a global North state, is still often seen as semi-periphery within the European Union [22,39]. Second, the research sites are two small villages in the rural area of Central Bohemia, a casual rural locality located neither in a suburban nor in a very peripheral area. Third, the research is produced by sociologists and social geographers beyond the dominant Anglosphere or Western Sphere. According to these aspects, in this paper, we argue for the consideration of the importance of local specifics, focusing on rural places and using CEE as a source of academic knowledge of alternative food networks (cf. [22]). Additionally, two rather uncommon aspects are discussed within the research, i.e., livestock breeding (animal husbandry) and the relationships among home gardening, rurality, rural development, and food policies.

The paper is structured as follows: The Introduction is followed by the Literature Review ordered according to the main research topics; the Materials and Methods Section consists of a description of the geography and population, sampling, data collection, and analysis of the case study; subsequently the Results Section is also structured according to the three research topics; followed by the Discussion Section; and finally, the Conclusions Section.

2. Literature Review

2.1. Current State of Home Gardening

The share of gardening households in the global North is high. National or regional representative studies have shown that between 40% and 60% of the overall population in Czechia, Poland [19], Hungary, Germany, Scotland [20], Croatia [21], and Ohio (US) [26] is engaged in household gardening. The amount of self-provisioned food is not negligible, as suggested by qualitative and quantitative results from Czechia. In Czechia, over one-third of fruit and vegetables consumed in households of gardeners is self-produced [43]; a local case study of allotment gardens revealed a self-sufficiency rate of almost one-half of fruit and vegetables [44] or even higher [18]. In general, gardening is more widespread in rural areas. However, comparative research that has taken the availability of land into account (usually indicated by living in a family house with a garden) has shown that access to land was a more important indicator than the place to living [20,26].

While fruit and vegetables are the most common types of food produced in gardening households, cereal crops are rather rare in European conditions [45], as well as livestock breeding being significantly less common and less researched. A comparative study of four European rural regions showed that the share of livestock breeding households ranged from 7% in the Netherlands to 26% in Hungary [45]. Ethnographic research from Czechia and Slovakia has also reported livestock breeding (e.g., chicken, rabbits, pigs, or sheep) [33,36,46], despite its significant decrease during the 1990s (Haukanes in [36]).

While various in-depth qualitative studies have focused on socially marginalised groups or areas, especially in rural regions [36,37], quantitative research focusing on the representative population suggests that home gardening is a socially inclusive activity carried out by all social groups [26,47]. The effect of age or income seems to vary with respect to particular case studies [20,29,48]. In rural Canada, for example, the lowest income groups are the least involved in gardening [49]. However, it is clear that the dominantly “economistic” or utilitarian interpretation of home gardening as a coping strategy of a poor population or post-socialist relic is totally flawed in global North countries [18,22,25]. Such an argument can be supported by research on the motivations of gardeners. The results, from Czechia, have shown that fresh and healthy food or as a hobby are the most important motivation for gardeners, although financial motives are also of some importance [19,43]. Similarly, leisure activity and food quality are important for Russian dacha gardeners [29]. Another even more important support to our claim is that research intentionally focusing on low-income households has also revealed gardening as a multifaceted activity. Economic

motivation is more important for them than for higher-income social groups but the joy of gardening or being outside [50], quality and social status of producing their own food, or autonomy and identity [36,37] are also of high importance.

The above reviewed papers and data resulted in the following research Topic 1: What is the current state of home gardening in the case study of a rural area? How widespread is gardening, what kind of food is produced, and what motivates gardeners?

2.2. Sustainability Context

Using the concept of the three pillars of sustainable development, we focus on gardening's contribution towards environmental, economic, and social sustainability. From the environmental point of view, home gardens can serve as places of agrobiodiversity and traditional plant conservation [34,51], provide space for wildlife, contribute to air cooling and water absorption, and therefore, support adaptation to climate change [52]. However, improper use of fertilizers or pesticides, introduction of alien species, or contributions to greenhouse gases from garden machinery can also occur [52,53]. Despite the fact that environmental motivation is not explicitly expressed by many gardeners [43], some articulate high environmental concern [25]. According to some research, the use of pesticides is often pragmatic (seen as necessary in particular situations) [36,44], whereas other research shows that the majority of gardeners do not use them and prefer natural fertilizers only, not industrial [43,50]. Composting, an environmentally friendly way of waste management, has been reported in various studies from Czechia, Estonia, and the USA [25,46,50], in some cases also accompanied by livestock (hens, pigs) fed from waste as inseparable parts of kitchen waste management [46]. Home gardens also manifest the potential to contribute to climate change mitigation by reducing greenhouse gas emissions from large scale agricultural production, transport, and processing [43,54]. Composting plays an important role in lowering the greenhouse gas emissions of households [54].

Economic motivations and the effect of income on gardening were already presented in the previous section. Nevertheless, it is important to consider the real or perceived financial benefits for gardening households. These are indisputable in case studies focused on low-income households [36] or poor rural areas [24], but gardening is more of a strategy for enhancing food diversity, and only rarely is a pure necessity. When focusing on the general population, the economic aspects are even less clear. The research on Slovak households [33] as well as dacha gardeners in Estonia [25] has shown that only some of the gardeners see their production as savings, while some refer to the costs of gardening instead. Research from the 1990s transitioning Russia stressed the importance of food self-provisioning as a coping strategy for dealing with shortages in the socialist economy and 1990s economic downturn [23]. However, in the same period and country, other researchers have pointed to the lifestyle and leisure aspects of gardening and contested the interpretation of gardening as a mainly economically motivated activity [29]. Contrary to these differences, there is an overall consensus, based on research from various countries, that food is produced mostly for their own consumption or sharing with relatives, friends, or neighbours, and only rarely sold, either in an official or unofficial way [23,33,36,55].

Regarding the social pillar of sustainability, research shows a positive relationship among gardening and subjective well-being, more physical activity, and self-reported health status [56,57]. In addition to the benefits for individuals, gardening is an activity strongly related to the social lives of the families that take part [37,58] or influenced by family tradition [36,59]. Social relationships (e.g., extended family, friends, and neighbours) are also important, due to their help with work in the garden [60] and as recipients of the shared self-produced food. Giving, receiving, or the bartering food has been confirmed by almost every study focusing on this aspect of food production, although the amount of shared food varied [23,24,46,55,60]. In Czech conditions [55], two-thirds of the whole population participate in food sharing (giving, receiving, or both) and two-thirds of food growing households share some of the food they produce. Interestingly, the flow of homegrown food often contradicts simple economic logic. The food is commonly produced

in rural areas by late adult or retired food growers (who also have lower income) and passed on to their younger (and better off) relatives in the cities [55,60].

This inspired the following research Topic 2: What is the contribution of home gardening in the case study of rural areas to the environmental (composting and fertilizers use), economic (importance of own food for households' budget, costs, and profits), and social aspects of sustainability (food sharing and networks)?

2.3. Gardening in the Context of Rural Policies and Rural Performance

Despite the growing interest in community, allotment, and home gardening in urban areas, food production in rural areas has, so far, been more typically viewed through the perspective of market-oriented agriculture [61,62] or subsistence farmers [59,63]. In other words, home gardening is already seen as a part of urban agriculture while it is not seen as a part of general (rural) agriculture. Completely in line with the modernistic and neoliberal view of post-socialist transformation and market reforms during the 1990s [61,64], the shift from a relatively high rate of food self-provisioning towards market provisioning was both expected and promoted in many CEE countries [65]. The literature suggests that non-market (or informal market) agriculture is an interesting subject only for researchers in countries with stronger rural traditions and an important agricultural sector, such as Romania, Moldova, Poland, Lithuania, or Ukraine [30,60,63,66]. Despite this, smaller scale home gardening (not subsistence farming) is common in the global North [20,21,26] and is strongly embedded in rural cultures and lifestyles [28,33]. The distinction between subsistence farming and home gardening is not clear; both categories can be subsumed under the term "smallholders" (see e.g., [67]); for us, home gardening (typical for Czechia) often takes place in smaller gardens, without cultivation of cereal crops and with low integration into informal markets. From the policy perspective, rural home gardening can be perfectly described, even more than the urban one, as "invisible alternativeness" [68], which is sometimes even portrayed negatively in official documents [19].

As such, rural home gardening might be a part of the so-called rural performance. This concept refreshed debates on the definition of rural about one decade ago [69]. Edensor ([70], p. 484) used "performance" as a metaphor for the "ways in which people are predisposed to carry out unquestioned and habitual practices in rural settings". By their performance (through bodies, discursive practices, and material artefacts), people in rural spaces routinely produce different rurality spaces with material effects [71,72], by which they want to fix the identity of a given place [70]. These performances can be organised and more or less "choreographed", for example, on-farm markets [73] or agricultural fairs [74], but they are also enacted as iterative quotidian practices, for example, in the case of newcomers [75]. Performances of different performers construct various kinds of ruralities which may be considered to be more or less fitting to a given rural locality, and thus the "less appropriate" ones (similar to their performers) may be perceived as unacceptable.

Finally, the following research Topic 3 emerged from these discussions and interpretations: How do rural gardeners perceive their activities in the context of rural life and how do they view the future of gardening, including policy support?

3. Materials and Methods

3.1. Case Study Description

Czechia, part of former socialist Czechoslovakia, underwent a democratic and market economy transformation after 1989 and split into independent Czechia and Slovakia in 1993. In 2004, Czechia joined the European Union. The country stands at the 26th position in the global Human Development Index [76] and belongs to the global North countries of Very High Human Development, ahead of, for example, Italy, Greece, Portugal or most of the other post-socialist countries. The share of agriculture in the country's GDP and employment are both only 2% [77].

Both of the studied villages, Kokořín and Janova Ves, situated 1 km from each other, are found in Central Bohemia about a 20 min drive from the local administrative and urban centre Mělník (population 19,500) and a 50 min drive from the capital city Prague (population 1.3 million). Geographically, from the urban–rural continuum perspective, the locality is intermediate rural, i.e., it is located on the outskirts of the Metropolitan Area of Prague (see Figure 1), has a relatively stable population, and still maintains its rural character (as regards its physical appearance). Therefore, for the purpose of our research, the locality can be viewed as a typical Czech rural area. On the one hand, it has not gone through suburbanization or other counter-urbanization processes with the associated in-migration of urban middle-class residents. On the other hand, it does not represent peripheral rural areas with a dominant occurrence of low-income and older residents, long travel distances, and a higher risk of social exclusion. Therefore, it can be viewed as a semi-periphery within the Czech context.

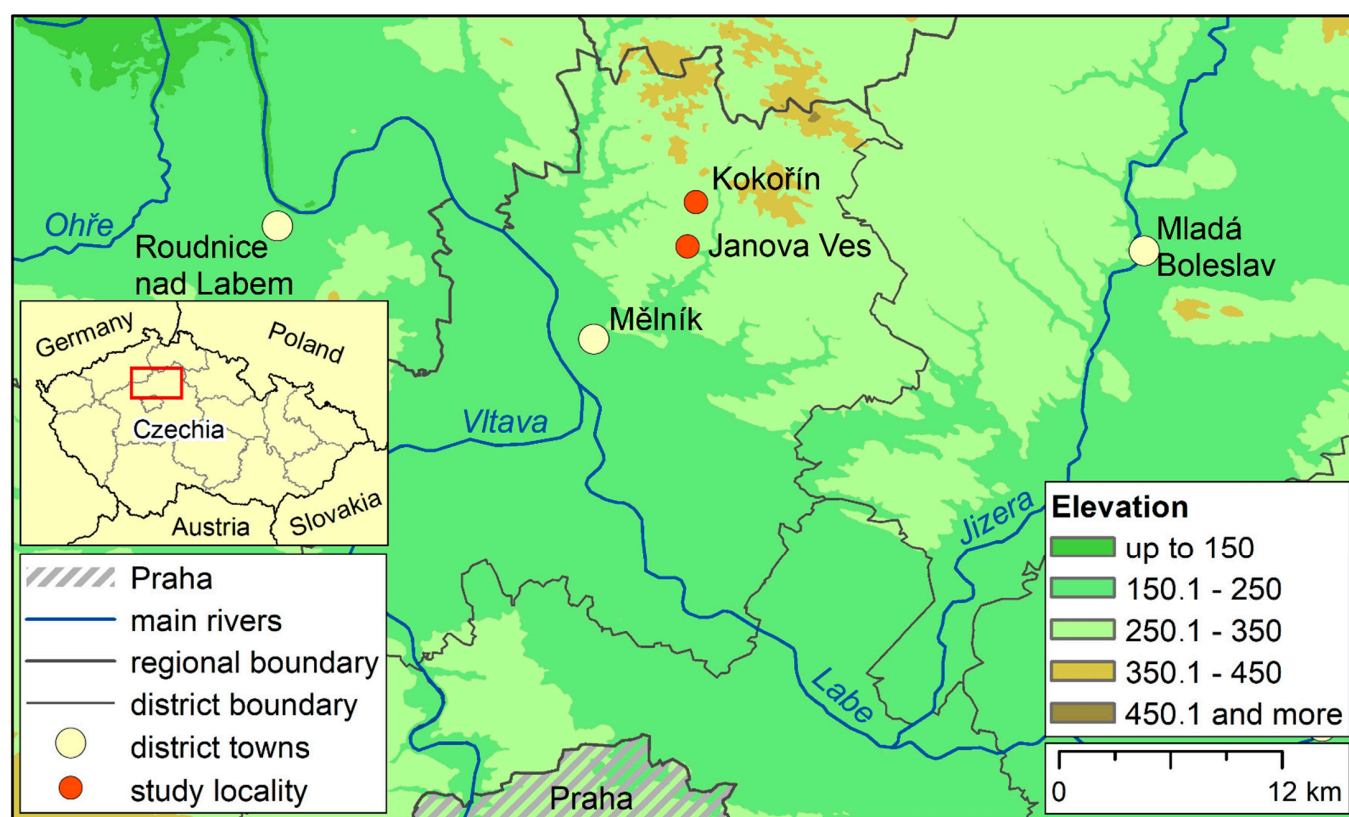


Figure 1. Geographical position of the case studies. Source: authors.

In 2017, the population of Kokořín was 203 and Janova Ves had 47 inhabitants. The villages consisted of 63 and 25 family houses (with adjacent gardens), respectively, with an additional 7 apartment houses in Kokořín with 40 flats (14 households had access to their own or rented garden, 12 of them directly next to their house). Out of the 88 family houses, 45 were inhabited permanently; the rest were used as weekend houses for recreation by their owners. The inhabitants of both villages often commuted for work to bigger towns and cities or worked as local entrepreneurs. The landscape around the villages is a mixture of intensively used agricultural land (mostly fields) and forests with sandstone rocks.

3.2. Sampling, Data Collection, and Analysis

The research aimed to reach all permanent inhabitants of both villages who had access to gardens to provide a complex case study of the area. Therefore, each family house was contacted by the researcher doing the fieldwork in February and March 2017. From each house, one respondent was questioned during the researcher's visit. Out of the total of 45

family houses and 14 households in the apartment houses with access to their own garden, 34 respondents filled in the questionnaire (24 for family and 10 for apartment houses). There were also another 14 inhabitants (all from family houses) who were willing to talk to us, and therefore the questionnaire survey was combined with a semi-structured interview in order to gain in-depth qualitative data and to provide for their better interpretation.

The questionnaire consisted of sociodemographic information and 15 questions focused on the extent of food self-provisioning, motivation, sustainability aspects, perceptions of gardening, and potential for its development. Semi-structured interviews (14 cases in family houses, lasting 40 min on average) covered all items of the questionnaire and allowed respondents to explain their views in detail. These conversations were recorded and transcribed, while in some cases only detailed notes were taken, due to the participants' refusal of recording. All answers were anonymous.

In this way, we received information about food self-provisioning from 48 households. Given the fact that more family members were usually involved in gardening and that some of the family houses had two generations, the researcher aimed to contact the family member who played the leading role in gardening. If this was not possible, those respondents who participated in food production were chosen. Respondents were representative of the stable local population. Eighty percent of them had lived in the villages for decades, while only 20% of them had lived there for less than 20 years. Regarding the sex and age, 69% were female and 31% male, with 25% of respondents in the age group 20–39 years, 31% of the respondents in the age group 40–59, and 44% of them 60 years and older. A higher share of older respondents was caused by the relatively old population in the villages, as well as the fact that seniors were often those who were the primary gardeners in the households, although other family members also participated. Regarding education, 10% of respondents finished their education after primary school, 73% had high school qualifications, and 17% had a university degree.

In the case of the remaining 7 family houses with uncontacted inhabitants, their gardens (not the gardening practices of their owners) were observed to provide information about the occurrence of fruit trees, cultivation of any vegetables, or livestock breeding. These data, taken as researcher notes, complemented the data on the extent of food self-provisioning gathered through the questionnaire survey. Other kinds of data based on the questionnaire survey (such as motivations, sustainability aspects, etc.) could not be, naturally, covered by this research method.

According to the interview guide derived from the questionnaire survey, statements from the interviewees were analysed and combined together with quantitative data. The results presented below are based on the descriptive statistics accompanied by illustrative quotes from the interviewees.

4. Results

The results below are presented according to the structure of the research topics. First, we provide an overview of the current state of rural home gardening (share of gardeners, types of food and livestock, and motivations), we continue with the sustainability context (environmental, economic, and social aspects), and we end with a section that focuses on the future outlook of gardening and its context in rural life in general.

4.1. Current State of Home Gardening

Considering all of the 55 households with access to a garden, the majority of them (78%) **participated in food self-provisioning**. Focusing separately on the households living in family houses, 38% of them grew food and bred livestock and 40% grew only food (together 78%). Similarly, 80% of households in apartment buildings grew food but no household kept livestock, which could be explained by the fact that their gardens were not always in the nearby proximity of their apartment and were usually too small to be used for animals. Growing food as a typical activity for rural areas was supported by the fact that in the group of 12 nongrowing households, three of them were pensioners who

used to grow food and breed livestock but stopped because of age and health problems and one respondent planned to grow food in the future. Table 1 shows the frequency of the **most common types of fruits and vegetables** grown among the households, as well as the types of **domestic animals** kept. Particular types of food and animals were simultaneously mentioned by respondents. While fruit and vegetables were common in most of the gardens in the villages, breeding domestic animals was less common, although still relatively widespread. Among vegetables, tomatoes, potatoes, and cucumbers were most often grown; apples and currants were the most favoured types of fruit. If any animals were kept, poultry was almost always represented, followed by bees and rabbits. Illustrations of gardens with a vegetable plot and poultry are shown in Figure 2.

Table 1. Share of gardeners who produce vegetables, fruits, and livestock.

		Number of Cases	Percentage of Households Producing a Particular Type of Food as a Share of:				
			All HH.	All Gardening HH.	All HH. in FH.	All Gardening HH. in FH.	All Livestock Breeding HH.
Vegetables	Tomatoes	19	40%	48%			
	Potatoes	15	31%	38%			
	Cucumbers	12	25%	30%			
	Onion	10	21%	25%			
	Carrot	10	21%	25%			
	Garlic	9	19%	23%			
Fruit	Apples	17	35%	43%			
	Currant	12	25%	30%			
	Strawberries	10	21%	25%			
	Plums	10	21%	25%			
	Raspberries	8	17%	20%			
	Gooseberries	8	17%	20%			
Animals	Poultry	16	33%	40%	42%	50%	94%
	Bees	7	15%	18%	18%	22%	41%
	Rabbits	6	13%	15%	16%	19%	35%
	Pigs	2	4%	5%	5%	6%	12%
	Goats	2	4%	5%	5%	6%	12%
<i>n</i>			48	40	38	32	17

Note: HH, household and FH, family house. Family houses which were only observed (7 cases) were not included into the table as it was not possible to define which types of food are produced. Calculation of livestock breeding as a share of family houses is only possible as there were no animals kept by gardening households living in apartments. Source: authors.



(a)



(b)

Figure 2. Illustration of the gardens. (a) Garden with a vegetable plot and fruit trees; (b) Rooster, hen, and rabbit hutch (in the left part of the picture). Source: authors.

The motivations for growing vegetables and fruit are summarised in Figure 3. Respondents were asked to choose all relevant motivations from five options offered to them. Tasty food (83%), healthy, and high-quality food and as a hobby (both 80%) were seen as the most important with financial savings and environmental protection (both 30%) seen as less important. Below, we list some quotes from the interviews related to taste, health, quality, and hobby motivations. Financial and environmental aspects are included later in the text, along with answers to other similar questions. Quality and health motivations were illustrated by their criticism of conventional agriculture and sometimes linked to the health of their children and their need to know the origin of their food. Additionally, in the case of tomatoes and strawberries, the lack of taste of fruit from shops was also stressed.

"We like it and the children demand it. Eating a tomato directly from the stem in summer, that's the best!"

(female, 30 years)

"I want to have fruit and vegetables without chemicals for my children—that's the most important thing for me."

(female, 45)

"I find it important to know what I eat. It makes no sense to spend money for organic or eco-certification if I can grow it on my own."

(male, 36)

Respondents who answered that food growing is a hobby often simultaneously mentioned that it was physically demanding but kept them fit and brought mental relaxation and joy.

"It makes me happy; I look forward to it during the whole winter. It's exhausting but, look, I sit all day at work, so I have to go outside and do something, otherwise I would go crazy [. . .] You forget all your worries and problems at work."

(female, 57)

"It's easy, we do it just for our enjoyment."

(female, 78)

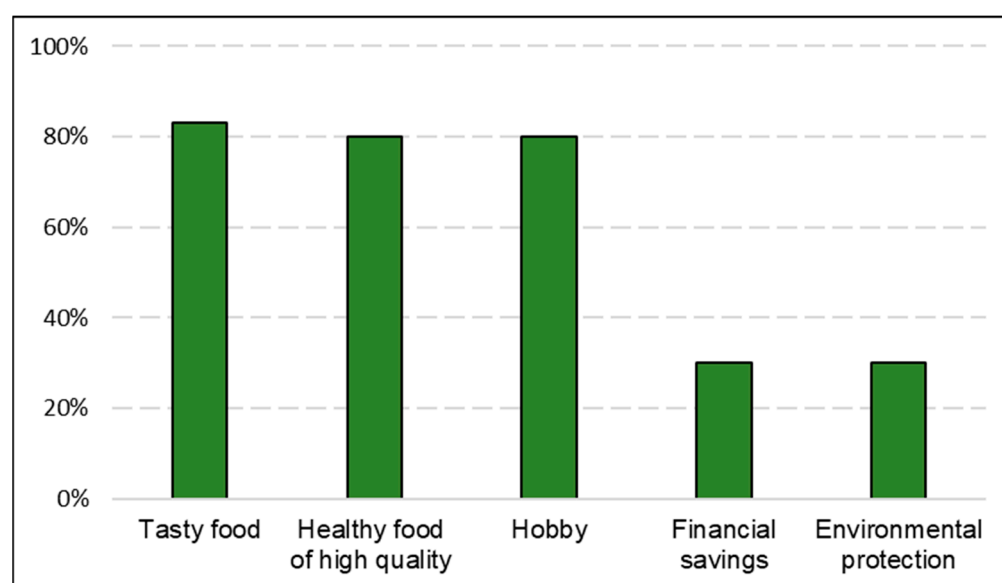


Figure 3. Motivations for gardening. Percent of gardening households according to the questionnaire ($n = 40$). Respondents could choose more than one option. Source: authors.

While the motivations, shown in Figure 3, were linked to growing fruit and vegetables, specific motivations and ideas were offered by respondents for keeping livestock or not.

Those food growing respondents who did not keep animals often argued that that was due to a lack of experience, knowledge, or time. However, the question of time and the everyday care for the animals could change during one's lifetime. This way of thinking was supported by the fact that two-thirds of the respondents who bred livestock were retired seniors, who were often responsible for taking care of animals even when living together with younger family members.

"We have relatively little children, and we like to go for summer holidays, but we couldn't do that if we had animals, and I want to enjoy holidays. Maybe in the future I can imagine it."

(female, 45)

When it comes to particular animal species, hens were the most popular and were often kept primarily for eggs; their breeding was described as undemanding, especially in contrast to rabbits. For the breeding of hens, health and taste reasons were often mentioned. Contrarily, the need for livestock medical treatment and the preparation of feed (e.g., hay) were seen as a potential obstacle for livestock breeding in general. Goats (both for milk and meat) and pigs were kept only in a few cases. Similarly, as in case of hens, pigs were described as consumers of kitchen waste (see also below), and thus their feeding was perceived as relatively easy by the respondents, although both pigs and goats were rather rare. In the case of beekeeping, family tradition was often stressed. The environmental and economic context of livestock breeding is mentioned below.

"Pigs eat everything and then the whole family have meat, including our relatives."

(female, 30)

"We have hens for eggs, I couldn't kill them [. . .] It's good to have hens, I always give them kitchen waste and you feel that you don't waste anything."

(female, 25)

"I eat only my own eggs, I'm fed up with the problems with imported eggs, so I have my own hens."

(female, 57)

4.2. Sustainability Context

According to the answers of respondents, their own food production can be described as an **environmentally** beneficial activity. The majority of the respondents (80%) used manure or compost for fertilizing and only 25% of them used industrial fertilizers (some gardeners used both). Composting was less often done by households living in apartment houses, whose gardens were smaller, which could have made it difficult to manage compost in the garden. Some respondents reported using some gardening chemicals, such as fungicides for tomatoes, potato protection against pests, or protection against peach diseases. However, these chemicals were usually used only once a year. All respondents, including those using some chemicals or industrial fertilizers, viewed gardening as more environmentally friendly than conventional agriculture. Respondents quite often talked about food waste being either composted or used for livestock feeding, which were both viewed as waste prevention and of meaningful use. Animal welfare was mentioned only by one respondent, who believed that her livestock lived better lives and died more quickly as compared with those in conventional meat production.

"We like eating meat and eggs, but we don't want to support industrial production where the animals suffer. Therefore, we'd rather have our own animals which have quite a nice life and die quickly without suffering."

(female, 53).

Despite the high frequency of gardening, this activity still has an **economically** supplemental character for most of the households, as Figure 4 shows. Their own food production was only a negligible seasonal source of food for half of the respondents, while being a

supplemental or important source for approximately a quarter, respectively. Only 5% of respondents reported that their own production of food was their main source of food. Respondents' gardens were not the only source of food for any of them; all of them (including households consuming the highest share of self-produced food) still shopped regularly in supermarkets (100% of respondents). Other shopping places included small grocery stores (58%), direct shopping from producers (30%), and farmers' markets (18%).

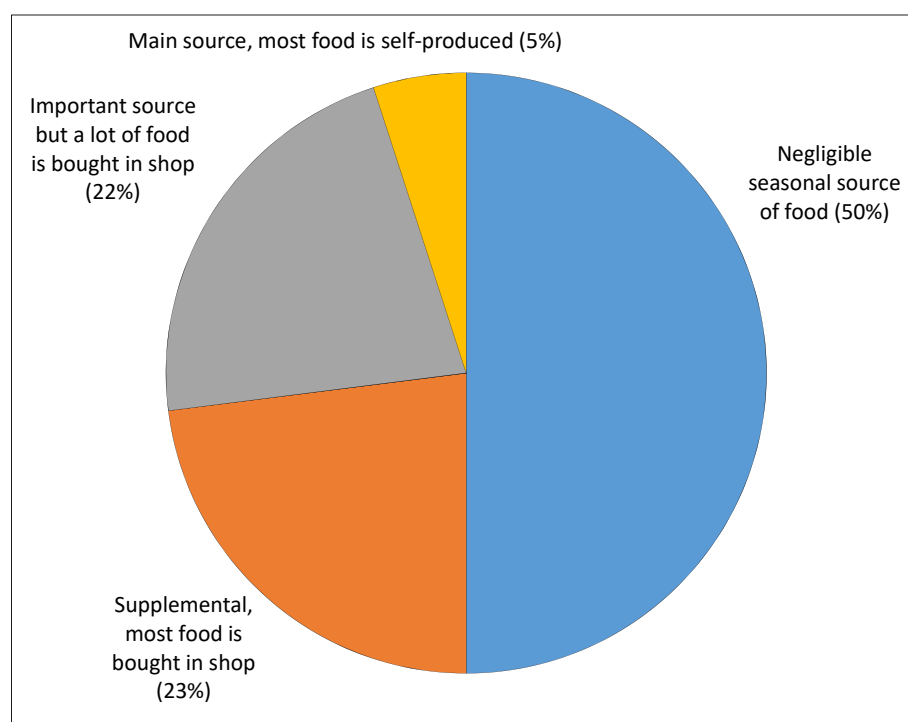


Figure 4. Importance of own production as source of food. Percent of food self-provisioning households according to the questionnaire ($n = 40$). Sum may not be 100 due to rounding. Source: authors.

Respondents were asked about the economic benefits of gardening. The majority (60%) perceived their own food production as economically beneficial for their household, 25% did not know, and 15% answered that it was not beneficial. Those who viewed it positively mostly argued that financial savings were often related to the perceived higher quality of their own food than of that in shops. Respondents who replied that food self-provisioning was not economically beneficial pointed to the high costs of inputs (costs of seeds, seedlings or fodder, maintenance of garden machinery, and chemicals) or mentioned the time spent while working in the garden. The uncertainty of the yield was also mentioned by some respondents. Their own food production as financial income was mentioned by 20% of the food growing respondents who occasionally sold honey, eggs, potatoes, or garlic. The income from food selling was only a supplemental source of finance for any of those households, not a major source.

"For sure it pays off, I wouldn't buy strawberries or tomatoes for such high prices in shops. Moreover, the quality of food in shops is horrible."

(female, 25)

"For me, it's important, what I have in my garden, I don't need to buy meat and eggs at all. Contrarily, we can sell something to our neighbours [...] As we see it, life would be harder without the food from our garden."

(female, 64)

"For sure it doesn't pay off, the costs of seedling and maintenance are high, not to speak about the time one must spend with it."

(female, 72)

"It doesn't always pay off, one doesn't know what could happen. Last year I bought strawberry seedlings but the roe deer visiting our gardens ate them."

(female, 30)

Seasonality is an important aspect of food production. A surplus during the yield (June to September for most of the respondents) can be followed by a lack of their own food during winter and early spring. From this point of view, it is important which kinds of plants are grown. As the results in Table 1 show, many food products can be easily stored raw during the whole year (e.g., potatoes, onions, garlic, or apples). Indeed, 43% of gardeners reported storing some. Storing of food included mostly root vegetables (carrots, parsley, and celery root), garlic, onions, potatoes, cabbage, and apples. However, some food must be processed before storing. Two-thirds (65%) of respondents processed food in some way, including canning fruits (jam and compote), pickling cucumbers or cabbage, drying apples, or freezing (fruit, vegetables, and meat). Interestingly, the amount of food stored and processed could be relatively high and could lead to the substitution of other food, as shown in the case of cabbage.

"We live off sauerkraut the whole winter, its full of vitamin C and healthy for your digestion. We eat it raw or cook it. Therefore, I don't need to buy those disgusting tomatoes in the shops, in order to feel that I eat something healthy during the winter [...] We store whole heads of cabbage and I make salads out of it till February."

(female, 53)

When considering the **social aspects**, two-thirds of gardeners (65%) reported that they shared food with other people, mostly their relatives outside the village, often in the nearby district centre Mělník or in Prague. Various types of raw food were shared, both for storage and direct consumption during the gardening season (potatoes, garlic, onions, root vegetables, apples, and other fruits). Meat and processed food (pickles, jams, etc.) were also shared. Sometimes, the amount was also relatively high, similar to the case of food storage mentioned above.

"My son lives in Prague with his girlfriend and, as far as I know, they don't eat any other meat and eggs than what they take from us. During the whole year, they have fruit and vegetables, compote, jams and other canned stuff [...] They really almost don't need to buy vegetables or fruit, in winter they receive from us apples, leek, cabbage, onion, garlic, potatoes, carrot and whatever else."

(female, 57)

Sharing food within the local community was much less widespread than sharing within the networks of relatives. Only about a quarter of respondents (26%) gave any of their own produced food to other members of the local community, almost half of the respondent (46%) received and 10% of the respondents participated in bartering. Perishable vegetables and fruits (e.g., strawberries, peaches, tomatoes, and peppers) were shared most often. However, such sharing was often described as an occasional activity and not regular and might have been linked to the feeling of reciprocity or obligation.

"Sometimes I give something to someone, usually if I want to pay them back for something. You know, Mr. XY usually gives me grain for hens, so it is clear that I want to pay him back."

(female, 44)

"A lot of giving is not a habit here, that's rather some idyllic image."

(male, 36)

4.3. Gardening as a Part of Rurality and Its Future

In the following paragraphs, we examine the **future of food self-provisioning in rural areas**. First, respondents were asked for their gardening plans. Seventy-five percent

of them would like to continue in the current way, 20% planned to grow more food and 5% planned to expand their livestock breeding. No one planned to grow less or completely stop producing food. However, as gardening was a supplemental source of food for most respondents, their activity was influenced mostly by limited free time in the case of working people or by health and physical ability in the case of retired gardeners. The situation could also be influenced by a partner's decision.

"I will do it as long as I can."

(male, 71)

"I'd rather stop doing it [gardening] but my husband wouldn't, when he has the land. In no way could he just leave it fallow."

(female, 72)

Given the fact that current gardeners are usually of middle or older age, we asked them for their opinion about food growing by their children or heirs. Only respondents living in family houses were asked (including those non-provisioning), due to their ownership of the garden. Almost a quarter of respondents (24%) thought their children and heirs would grow food, most of them (39%) did not know, 16% thought that probably no, and the other 21% answered no. The overall perspective, thus, was rather negative. Older gardeners often thought that food growing was not an important part of life of young people and that they would prefer different (urban) lifestyles and different ways of spending their free time.

"Our girls grew up with it [gardening] but I see that they are not interested, they'd rather go to the city."

(female, 44)

"I try to show them, but they probably don't care, they want to help me now but probably won't tend to keep the garden by themselves."

(male, 71)

Secondly, when all respondents were asked whether rural inhabitants in general should produce their own food, the answer was overwhelmingly positive (90% answered yes). Very often, the reason was that gardening was part of the **rural way of life**, being linked with a connection to the land and viewed as a resource which should be used.

"It's just part of the village, I don't know why I would want to live in the village if I wasn't interested in cultivating the plot."

(male, 36)

"People should farm in the village, it's a thrifty use of what we have here."

(female, 45)

"If someone lives in the village, they should have something [food] in the garden. I can't imagine it without it, the distance from here to anywhere is long, food is expensive, so this is the way I get something from the rural life."

(female, 64)

"What can we do, there's no shop here and where can I always drive to? Especially in summer, why should I go to Mělník for shopping if I have better and fresh food in the garden. It's just good to have the food at home."

(female, 78)

As the quotes suggest, apart from the perception of gardening as a natural element of rural life, the distance from other food sources was also mentioned as a reaction to the question on their motivation for gardening. This was also related to lower mobility in some cases. For some of the respondents, environmental, even spiritual motives were important, though these themes did not appear very often in the interviews.

“For sure, people should be gardening, it builds a better relationship to nature and the environment.”

(female, 57)

“Simply, it’s a lifestyle, relaxation, being grounded in chaotic times, contact with nature [. . .] I don’t know how to describe it.”

(female, 25)

Thirdly, respondents were also asked about their opinion towards general **support for food self-provisioning in rural areas**. The majority (83%) of them thought that it should be supported. While many of them did not offer any specific ideas about how support should be realised, some mentioned issues of children’s education, both by parents and school, and others pointed to health, physical activity, or the economic context and support for local producers. Ideas linking food production with an improvement of community life also appeared, for example, by increasing its popularity by local “best food” contests and other do-it-yourself activities.

“It’s about upbringing, young people should be introduced to [gardening] from childhood, in school as well.”

(female, 57)

“Maybe the state could somehow promote direct selling to motivate people. Otherwise, I don’t know, the younger generation probably just has to grow up [to start gardening].”

(male, 36)

“Maybe it would be useful to inform people that it’s “organic” and healthier. Briefly, to advertise gardening somehow.”

(female, 44)

5. Discussion

The results of our case study confirm the popularity of gardening in rural areas, i.e., 78% of respondents produce some food in their gardens. A comparison with regional or country representative research [19,20] suggests that the occurrence of gardening is higher in small settlements than in larger rural municipalities. The types of fruit and vegetables produced corroborate previous findings [78]. Our findings also reveal the presence of livestock in rural households, a topic which is less typical for urban gardening [45] or tends to be overlooked in the urban context. Every second gardening family living in a family house breeds hens. This makes hens important actors in the rural space (cf. [46]), which are important sources of eggs and are perceived to be easy to manage. Hens are part of a household’s circular economy since they can be fed with kitchen waste. The breeding of rabbits, pigs, or goats is a more demanding and time-consuming activity. A special category of animal production is beekeeping, which is often not in the direct proximity of houses and does not need everyday care.

Animal welfare is not a priority for most gardeners. The topic was mentioned only once by a respondent who perceived the quality of life of her animals as better than of those in industrial production. Nevertheless, the very typical rabbit hutch, in Figure 2 (box on the left in the right photo), illustrates that, especially in the case of rabbits, the living space is usually small. However, the living conditions of free-range chickens living in a garden are objectively better than in industrial egg and meat production.

In line with a previous Czech case study [46], our respondents mentioned feeding animals or composting as a meaningful use of food waste. Additionally, compost is, along with manure, the most common type of fertilizer. Such behaviour corroborates previous studies [19,25,50] but also highlights the importance of the necessary infrastructure or resources; households with rented smaller gardens (and without livestock) compost less often. We are aware that it is not possible to glamorize gardeners. Their approach towards industrial fertilizers or pesticides is pragmatic but, in our case study, pesticides are usually used only once a year if needed. Despite some use of pesticides and industrial fertilizers,

the gardeners themselves view their production as environmentally friendly (similarly as [36]).

Thus, although environmental motivation is not often expressed, there seems to be some environmental concern among the gardeners (see also [25]), manifested by their answers in interviews. Own food is presented in opposition to conventionally produced and sold food as follows: “vegetables without chemistry for my children”, “problems with imported eggs”, or “disgusting tomatoes in the shops”. The control of the source of food and its proximity are implicitly very important, however, they are hardly expressed in a “food sovereignty” way [27]. In this term, gardening fits into the concept of unintentional “quiet sustainability” [19], employed for environmentally friendly behaviour and its consequences, albeit without a clear or explicit pro-environmental motivation (this is rather implicit, mentioned in the interviews but not chosen as crucial in the questionnaire). Similarly, as in previous research in Czechia [43,48], as well as in other countries, taste, quality of food, and hobby are the most important motivations for the respondents of our case study [50].

For most of the gardeners, their own food is only a “negligible seasonal source”; only a few of them see it as the main source of food. Given previous findings pointing to the high rate of self-sufficiency of gardeners [43,44], this finding is questionable and may be explained by an imprecise estimation of their own food production and consumption. This is one of the limitations of the study. The fact that 43% of gardeners store some of their food to be consumed during the year and 65% of them process it (canning, pickling, drying or freezing), we may justify our consideration that their production might be higher than they think. This seems to be plausible, at least for some of them, as shown by the quote mentioning eating cabbage the whole winter, and therefore not needing to buy low quality tomatoes in order to have some vitamins.

However, this does not mean refusing to shop at all or a “quality turn” in terms of organic or local suppliers. All of the gardeners regularly shop in supermarkets and most of them in small grocery stores. Only 30% buy food directly from producers and 18% at farmers’ markets. Some also openly expressed a disinterest in eco-certification because it was viewed as expensive. Taken together, this supports the existence of the distinction between “traditional” and “new” alternative food networks in the CEE context [39] and the fact that the new Western-style alternative food networks are not very attractive for rural dwellers in CEE countries, or at least not in Czechia.

Our results contribute to the inconsistent findings about the economic costs and benefits of gardening [25,29,33] by favouring the benefits (60% of respondents) against costs (15%). Direct financial benefits were reported by 20% of households due to the occasional sale of some products. Although the argument of a lay cost-benefit analysis is interesting (comparing quality, prices, time consumed, and uncertainty of the yield), it also shows that a purely economic assessment cannot be applied. The respondents do garden, despite expressing that it “doesn’t pay off”; moreover, the health, leisure, cultural, and lifestyle aspects must be accounted for as well. If we want to think economically about gardening, wider concepts such as diverse economies [38] or moral economy [25,46] are more appropriate.

A discussion about the social aspects of gardening, namely food sharing, must be divided into two parts, i.e., within family and outside. The majority of gardeners share food with their relatives, often outside their settlement. Thus, the flow of food is similar to what has been described in previous studies, i.e., food travelling from rural to urban areas, often from older (and less well-off) gardeners to their younger (supposedly also better-off) relatives [55,60]. Food sharing within the community shows a disproportionate pattern of more recipients (46%) than donors (26%) with only a few bartering. It is often related to the sharing of surplus perishable products, which suggests a strong moral commitment to not waste food. However, sharing outside of the family is definitely less common and cannot be seen as a norm, according to some gardeners.

Although the gardeners expressed their interest in continuing in their activities, long-term continuity relied on the decisions of other family members. Respondent who reported “[my children] help me but probably won’t maintain the garden by themselves” pointed to the importance of family ties and the sharing of garden work [33,58,60], as well as the uncertain future of gardening due to the perceived lack of interest and the different lifestyles of younger generations. We hypothesise that this might be a question of changes during the process of one’s aging. Gardening parents may be seen as boring and outdated by teenagers or young adults, but they might change their views when planning or having their own children. Research pointing to the relation of having children and interest in gardening supports this hypothesis [13,20,79].

While gardeners disagreed in many opinions, there was an overwhelming consensus about the importance of gardening in rural areas and the perception of gardening as a part of rural life and culture. Therefore, we argue that, in accordance with the concept of rural performance [70], home gardening as an iterative quotidian practice of rural dwellers is a tool by which they, rather unintentionally, construct the identity (rurality) of their place, and the relation of gardeners and the surroundings (village and rural landscape) is reciprocal. The rural milieu in which they live allowed them to confirm and re-perform its identity by home gardening which was perceived by gardeners as an integral part of life in their village. Of course, such performances might also be driven by local collective norms. Either way, our research shows that while explaining higher rates of home gardening, apart from reasons such as land availability, lower accessibility of groceries and gardening as a coping strategy of poor rural populations, we must also consider the structuring factor of physical space, and collective norms defining what ought to be done in the gardens of family houses.

The shared opinion that food self-provisioning should be supported in rural areas is in contrast with reality. In 2000, the Plan of Agricultural and Rural Development of the Czech Republic 2000–2006 included the text, “Ineffective self-provisioning habits (eggs, poultry, potatoes, vegetables, fruit) hang over from the past, which contributes to the relatively low purchasing power of the countryside [. . .] Food self-provisioning, which provides households involved in this activity with a basic livelihood, can sometimes contribute to decline and exclusion” ([19] p. 149). An optimist might expect that climate change, economic and social stresses after the 2008 crisis, as well as 20 years of social and environmental research of unsustainable food systems would be reflected in policies. However, this would be a very naïve expectation.

None of the relevant documents, including the main national sustainable development strategy Strategic Framework Czech Republic 2030 [80], Strategy of Food and Nutrition Security 2014–2020 [40], nor the recent Conception of Rural Development [41] include a single mention of informal food production in rural or urban areas. Total ignorance of non-market food systems is also seen in the new EU strategy “From Farm To Fork” [42] which aims to move towards “a more healthy and sustainable EU food system” without mentioning any non-market food production or sharing alternatives. It is worth mentioning that the EU strategy was published during the COVID-19 pandemic which highlighted problems in the food systems of many countries [4]. Czech policymaking reacted to the crisis by increasingly calling for national self-sufficiency in a traditional productivist agricultural manner. (While calls for higher support for fruit and vegetable producers might be seen as beneficial, the proposed legislation demanding 85% of non-specialised food products sold in Czechia to be made in Czechia is rather problematic, including questionable compliance with the regulations of the EU common market [81].) All of the abovementioned conceptions, strategies, and approaches overlook the widespread traditional alternative food systems and their sustainability potential [19,25,59]. Rural gardening is literally “invisible” from the policy perspective. This invisibility in policymaking is, in our view, caused by a combination of the following two factors: its invisibility in the research, and a prevailing focus of policymakers at all levels on formally recognized agriculture, which fits better into the dominant concept of the market economy.

6. Conclusions

By employing the mixed methods approach of questionnaires, supported by interviews and observations, our paper provides complex insight into gardening in two small villages in Czechia. According to our results, rural gardening is a widespread activity including fruit and vegetable production, as well as livestock breeding. Particularly livestock breeding, commonly hens, makes rural gardening distinctive from gardening in urban areas and enlarges its potential contribution to sustainability. Taste, food quality, and as a hobby are the most important motivations of gardeners.

From the perspective of the three pillars of sustainable development, we argue that rural gardening contributes to all of them albeit with different intensity. The environmental pillar is linked with local food consumption, composting, and waste management in the style of a circular economy, including hens (but other animals too) as an important part of kitchen waste management and source of meat. The reported moderate use of pesticides and industrial fertilizers also supports a low environmental impact of gardening. Moreover, it helps to maintain more sustainable micro-landscapes within rural settlements created by home gardens, which also confirm the identities of rural places. Gardening, in general, provides economic benefits despite the economic motivation being largely missing. Thus, it can be viewed as contributing to the economic pillar of sustainability and to the potential resilience of households. The social aspects of sustainability seem to be more important (as home gardening was primarily perceived as a hobby more than a necessary strategy of food provisioning) and the most supported by gardening. This includes food quality and taste, active lifestyle and hobby, and the strengthening social relationships through food sharing. Our findings suggest that gardening is seen as an important part of rural life which should be supported by policies. Nevertheless, gardeners are rather sceptical about the future of gardening and the interest of their children in this activity.

Many parallels of our findings and research carried out in different countries of the global North (including Eastern and Western Europe, Canada, and USA) allow us to argue that the basic characteristics of gardening and gardeners are, to a large extent, similar in most of the countries. Nevertheless, gardening in any one country cannot be reduced to one interpretation (such as a coping strategy of the poor, post-socialist relict, or reflexive environmentally conscious activity), as it is an inherently multidimensional phenomenon with mixed motivations of gardeners. Such conclusions also suggest that the knowledge produced in any one country or region, be it East or West, is relevant for the others, with some limitations.

Additionally, our research has shown that “new” Western-style alternative food networks are not attractive for Czech rural residents who are well-embedded in “traditional” ones. Yet, traditional gardening is neglected in Czech food, sustainable development and rural development policies, as well as in recent ambitious EU policies. From a policy perspective, home gardening is totally invisible, rural even more so than urban.

Some limitations of this study should be kept in mind while generalizing as follows: (1) Two very small settlements were chosen for the case study research, whereas the situation might differ in larger rural settlements, peri-urban areas, or in a peripheral location. (2) Although in some parts of the text we generalize our results to all rural areas (or at least rural areas in CEE), every country has its own specific conditions and history, and therefore generalization is limited. (3) Self-reported and self-estimated data may not always be precise, however, assessing these data as compared with other research suggest that the answers of our respondents are valid and plausible.

Regarding the research perspective, our paper is one of a few which intentionally focuses on rural home gardening in an inductive way with a sustainability perspective. This is our contribution to food system debates within rural sociology and social geography, parallel to more common streams of research studying commercial agriculture (including market-oriented alternative food networks), dacha gardening (functionally linked to urban sites), or subsistence farming. An investigation of rural home gardening in various countries, food sharing between rural and urban areas, rural development policy perspectives,

and comparative studies of gardeners and subsistence farmers are, in our view, challenges for future research.

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