



## Unseen food: The importance of extra-market small farm's production for rural households in Europe

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### ABSTRACT

Small farms are a key part of the system of food flows that happen outside of marketing channels, and which is a crucial source of food for to the most vulnerable part of the world population living in the rural or connected to the rural through family and other social links. Food Self-Provisioning (FSP) is the largest share of these informal flows. For Europe and European small farms today, the role of FSP is relatively un-known. In this paper we address the relative weight and relevance of extra-market arrangements in small farms in Europe, thus contributing to the understanding of the multi-dimensional role of small farms in the regional food system they are part of, and also in the wellbeing of their own household. The analysis is based on 739 face-to-face interviews to small farms, in 24 regions of Europe across a North-South and East-West gradient. We show evidence that FSP is important in all types of small farms, and even if all small farms are in some way linked to the market, they continue producing food which circulates outside the market and may be quite relevant for the farm household, as well as for strengthening social ties in the rural communities and rural-urban interactions.

### 1. Introduction

Access to markets is one of the key challenges faced by small-scale farmers all over the world. This challenge is made more difficult due to the globalization of food chains and the concentration of power among a few market actors, especially large retailers (C.S.M., 2018; Vorley et al., 2007). Small farmers struggle particularly to compete with large-scale industrialized agriculture in terms of costs, quantities, and compliance with the strict standards imposed to suppliers (Bureau and Swinnen 2018; Micha et al., 2015). At the same time, there is abundant evidence that small farms are crucial in feeding the world's population (IFPRI 2019; Samberg et al., 2016). In addition to being the most prevalent form of farming, small-scale farming produces most of the food consumed in the developing world, including Asia, Africa and Latin America (Fanzo 2017; Ricciardi et al., 2018). Through informal exchanges and food self-provisioning for the household, small farms support many of the planet's poorest and most vulnerable people (Graeub et al. 2016; Lowder et al. 2016; Samberg et al., 2016).

These informal food exchanges are key to understanding the importance of small farmers in the current debate about the present and future of food and nutrition security (HLPE 2013). Attempts to estimate the contribution of small farms to global food production and consumption (Béné et al., 2019; FAO 2017; Ricciardi et al., 2018) have been hampered by the fact that food circulates through different channels, not all easily accountable. Food self-provisioning – i.e. the use of products which are produced in a farm and are consumed, fresh or processed, in the farm household, or which are exchanged or given away to family, friends and neighbours (Balazs 2016) – is precisely one of these 'invisible' channels (Smith and Jehlička 2013).

Knowledge about food self-provisioning in Europe and European small farm households is limited (Davidova et al. 2012; Jehlička et al. 2018; Smith and Jehlička 2013; Taylor and Lovell 2014), as most of the research on small farms—and on this topic in particular—has focused on the Global South. The industrialization of production and globalization of technologies and markets, which are dominant in Europe, have led to the underplay of other forms of agriculture and specially of food

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production and food circulation (Vanloqueren and Baret 2009).

In this paper we aim to shed light on these unseen circuits of food self-provisioning in Europe, in which small farms play a central role. By ‘unseen’ we refer to food exchange or consumption that happens under the radar of sector-economic calculations of farm production performance and income. This unseen food does not enter formal marketing routes, and is either consumed by the household, or exchanged or gifted to neighbours and family (Jehlička et al., 2018; Schupp and Sharp 2012; Smith and Jehlička 2013; Teitelbaum and Beckley 2006). We draw on a comparative, cross-country survey of over 700 farm households from 25 regions in 14 European countries, with two central objectives: 1) to assess the proportion of food produced in small farms kept by the household, and thus unlikely to be captured by official statistics; and 2) to understand the role that non-marketed food plays in household consumption, the key drivers of self-provisioning, the role of informal networks of exchange, and the influence of the socio-economic conditions where small farms operate. In addition to the survey data, we draw on two case studies, from Latvia and Portugal, to illustrate how and why unseen food networks work in two very different economic and cultural contexts. We show the importance of food produced in the farm for the household self-consumption and for social linkages in the local community, with food products being given as gifts to neighbours, family and friends.

## 2. The known role of food self-provisioning

Agri-food systems in the Global North are often understood and governed through the concept of supply chains, which links the different functions of production, processing, trade and retail (Gereffi et al., 2005). Modern supply chains are governed by public regulations but also, importantly, by private standards concerning safety, quality and price that structure the relationship between the actors along the chain via enforceable contracts and strict supply conditions (Fulponi, 2007). Whereas in the developing world many food markets operate informally, in industrialized countries food trade outside formal value chains is exceptional, and it often remains outside of the radar of research and policy (Jehlička et al., 2020; Jehlička and Daněk 2018; Vanloqueren and Baret 2009).

Despite this, the literature from the Global North suggests that extensive informal food self-provisioning and food sharing networks also exist, involving considerable amounts of food and people (Davidova et al., 2012; Jehlička and Daněk 2018; Teitelbaum and Beckley 2006). Evidence suggests that informal food production is much more common in former communist countries (Alber and Kohler, 2008; Jehlička et al., 2013). Research from Eastern Europe (Jehlička et al., 2018; Smith and Jehlička 2013) suggests that self-provisioning enhances the resilience of farming households and results in environmental benefits. Also for Eastern Europe, Sophia Davidova (Davidova et al., 2012) found that non-marketed agricultural production may provide a substantial share of the food needs of the rural poor.

However, the drivers of food self-provisioning across Europe are diverse (Alber and Kohler, 2008). Food self-provisioning is often connected with food sharing, which fosters social relations and strengthens trust, a fundamental component of social resilience (Schupp and Sharp 2012). A study of food sovereignty in Post-Euromaidan Ukraine shows that food self-provisioning practices can change their significance and play a crucial role in contemporary social processes, as they have shown to have, feeding local groups during the political conflicts and becoming a practical expression of nationalism (Mamonova 2018). Unbound by the logic of markets, food self-provisioning can be linked to new interpretations that bring forth the social and cultural role of production, processing and consumption in each particular context.

Food self-provisioning is a long-standing practice that, while underexplored in the European context, plays an important role among rural communities. By developing a diverse portfolio of food sources, those who produce their own food can improve their wellbeing and enhance

the resilience of their household (Alonso et al. 2018; Ingram 2011). Food self-provisioning has therefore a growing potential to enhance the sustainability of food systems (Balazs 2016; Schupp and Sharp 2012).

## 3. Methods

The paper uses data from two sources: (1) a household survey, and (2) case studies in Portugal and Latvia. The survey, which covers several European regions, provides a broad view of the scope and nature of non-market food circuits, while the case studies go into greater detail about the contrasts between different products and the factors driving food self-provisioning. The methods for each of these sources are presented below.

### 3.1. Household survey

The first part of the results is based on data from a household survey carried out in 24 regions of 14 European countries during 2017 and 2018. A total of 739 small farm household surveys were conducted face to face.

The countries and NUTS-3 level regions (European classification) were selected using the results of Guiomar et al. (2018), where European regions were classified according to the structural and economic farm sizes and the relative importance of agriculture in each region. The final selection aimed to obtain a diversified and balanced sample in terms of types of regions and geographical locations.

We aimed to obtain data from at least 30 households per region. Due to resource and logistical constraints, in some cases the number of surveys was higher (up to 60) and in others lower (only 5).

Sampling of households was purposeful, aiming to capture a wide variety of small farms in each region (See Table 1). Key informants were consulted to develop an initial list of farms with less than 5 ha or below 8 Economic Size Units, the thresholds used by the EU for policy purposes (EC, 2011). The rest of the surveyed farms were sampled snowballing from the initial group. The aim was to capture the largest possible diversity of small farms in each region with regard to the following criteria: key products produced by the farms, market integration, self-provisioning strategies, and spatial distribution. The sample is not meant to be statistically representative of small farms in their region—and no statistical inference is used in this paper—but instead used to illustrate the diversity of small farms’ characteristics, problems and assets in today’s Europe.

**Table 1**  
Number of farm households surveyed, by country and region.

Country	Region	Sample size	Country	Region	Sample size
Eastern Europe			Southern Europe		
Bulgaria	Montana	5	France	Vaucluse	10
Croatia	Varazdinska	6	Greece	Imathia	39
Czech Rep.	Jihočeský Kraj	5		Larisa	38
Latvia	Latgale	36		Ileia	42
	Pieriga	30	Italy	Lucca	32
Poland	Rzeszowski	39		Pisa	24
	Nowosadecki	52	Portugal	Alentejo Central	38
	Nowotarski	57		Oeste	36
Lithuania	Vilniaus	10	Spain	Castellón	27
	Apskritis				
Romania	Bistrita-Nasaud	60		Córdoba	40
	Giurgiu	26	Total:	All regions	739
<b>Northern Europe</b>					
Norway	Hedmark	31			
France	Ille-et-Vilaine	10			
Scotland	East Scotland	15			
	West Scotland	31			

Our analysis uses the typologies created by Guarin et al. (2020) and complements them by presenting a characterisation of the types using data on the market and non-market linkages of the farms, as well as household food consumption strategies. The results presented here come from the same database used to construct the types, but uses data which was not used as dependent variables.

The five farm types (Fig. 1) are as follows: (1) peasant farms, which have the lowest farm income and are managed by relatively older farmers who farm because of family heritage; (2) part-time farms, which also have low incomes, but are managed by relatively young farmers who have other income sources and keep farming as a supplementary source; (3) diversified business, which are operated by producers exclusively dedicated to farming and who are well connected to the market through a broad portfolio of buyers; (4) specialized business, which are the wealthiest type, composed mainly of full-time farmers with long experience in commercial farming; and (5) new enterprises, which are managed by relatively younger, newer, better educated farmers investing in new business models, including certification schemes (for in-depth analysis of the types, see Guarin et al., 2020).

### 3.2. Case studies

The second part of the results is based on two case studies that provide a more in-depth analysis of the mechanics and role of unseen food. The case studies selected are the NUTS-3 regions of Latgale in Latvia and Oeste in Portugal. These were selected because small farms are important in both regions, and yet they provide contrasting examples in terms of crops, supply chains and socio-cultural context. For each region four products were selected for analysis after consultation with regional key experts. The selected products were selected based on their importance for regional production, consumption, or both. In Latgale, the four products were wheat, potatoes, honey and dairy. In Oeste they were grapes for wine, pears, eggs, and potatoes. For each product, we draw on interviews with key informants to develop a map of the regional supply chain, including the main actors, the links connecting them, and the relative flows between them. Based on the information of these food system maps, and on the household surveys described in 3.1., we developed a narrative about the role of non-marketed food for each product in Latgale and Oeste.

## 4. Results

### 4.1. Comparative evidence from Europe

Our results provide a number of new insights regarding the type and

scale of extra-market production of small farms in Europe today. First, none of farm types in our sample produces exclusively for subsistence. All farms connect to the market through selling their products, using different commercialisation channels. At the same time, all small farm types keep some share of their production outside of the market (Table 2).

The share of the production that stays outside the market varies according to the different farm types (Table 2). Part-time farms keep more than half of what they produce, while specialized businesses keep less than 10%. What happens to this unsold share of the production also varies. Across types, the greatest share of this unsold production is used for household food consumption. Small farms that are mostly commercially oriented (diversified and specialized businesses, and new enterprises) tend to keep a smaller share of their production, but what they keep they mostly eat at home. Conversely, as could be expected, part time and peasant farms keep the largest average share for household consumption. The share of production used as livestock feed is significant in all types, but relatively higher for the poorer and less commercially oriented farms (i.e. peasant and part time farms), suggesting the existence of a circular economy inside the farm as a way to deal with cash scarcity. A considerable share of the unsold production is used as gift for families and friends, and significantly this share is similar across farm types. A much smaller share of unsold production is traded or bartered. On the whole, this evidence tells us that all farm types keep a share of their production outside of the market, and that of this share, most of it is either for household consumption or gifts—meaning that it remains fully outside commercial interests.

Considering that this sample is composed of many different small farms across a range of regions in Europe, we do not find evidence for a ‘pure’ subsistence farm type. Our research suggests that the farms in our diverse sample are neither the fully subsistence farmers found in the new member states of the European Union (Davidova et al., 2012), neither the typical hobby farmers found in Scotland (Sutherland et al., 2019). The evidence presented here shows that even small farms which produce mainly for their households and for informal exchange with relatives and neighbours are also connected to the market.

The diversity of products sold and not sold (Table 2) provides further clues about the importance of production for self-provisioning. In most types of farms, the number of products which are not sold is higher than of those sold. This means small farms may be specialized in the products they send to the market, but for their own consumption they produce a larger diversity. Only in specialized business farms is the number of unsold products lower than the number of sold ones, as it would be expected from farms that are integrated into value chains and that have less incentives to keep production for household consumption. For

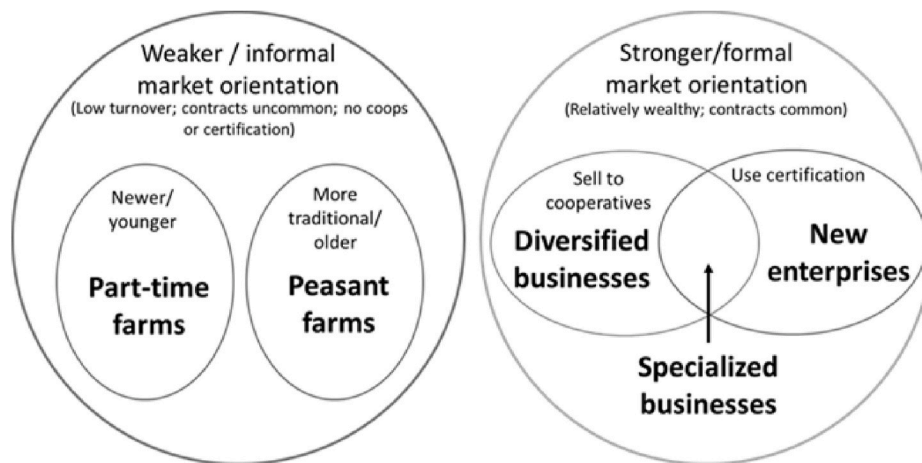


Fig. 1. Typology of small farms. Source: Guarin et al. (2020).

**Table 2**  
Share, diversity and level of unsold production, by farm type.

	Peasant farms	Diversified businesses	Specialized businesses	New enterprises	Part-time farms
Share and destination of unsold production					
Unsold production (%)	14	17	8	25	60
Destination of unsold production (%)					
Household food consumption	63	76	79	66	63
Animal feed in farm	24	12	8	11	22
Gift	12	14	10	16	13
Trade	1	2	3	6	4
Diversity of sold and unsold products					
No. of products sold (mean)	3.8	3.5	3.1	2.9	2.9
No. of products not sold (mean)	5.1	3.6	2.7	3.4	4.7
Households for which self-produced food satisfies more than half of the consumption (%)					
All food	38	35	22	49	43
Vegetables	53	53	41	68	63
Potatoes	49	50	24	68	68
Fruits	38	46	44	43	42
Dairy	43	35	19	40	55
Meat	44	41	19	40	50

peasant and part-time farms, which have the lowest income and the highest number of unsold products, the evidence hints at the importance of dietary diversity for the household.

Across types, the farm's own production satisfies some of the household's food needs (Table 2). While this was expected in the relatively less commercially oriented peasant and part-time farms, it is notable that even a fifth of specialized business gets half or more of their food from the farm. Food self-sufficiency is also important for new enterprises, suggesting that new entrants into farming—which also tend to be well educated—value the consumption of quality food.

Our results show that the importance of self-sufficiency varies across different food groups (Table 2). More than half of the households across the sample rely primarily on their own production of vegetables, which can be grown year-round, and potatoes, which are less perishable and can be stored. Households also rely on their own fruits, and to a lesser extent their own meat and dairy.

#### 4.2. Case studies from Latvia and Portugal

In this section we present examples from Latgale (Latvia) and Oeste (Portugal) to illustrate how food self-provisioning occurs in small farms across a range of market linkages, and to explore the drivers for food self-provisioning. Our examples come from two contrasting regions in continental Europe: one is in the Mediterranean South and another in the Baltic North, where the bio-physical conditions differ as much as the economic and rural socio-cultural context.

##### 4.2.1. Latgale

Latgale is the peripheral region of Latvia and the EU. Far from the country's centre and its economic development, the easternmost region embodies many of the problems faced by Latvia since the end of the Soviet era in 1990. Latgale has lost almost 40% of its population during the last three decades due to outmigration and population decline; it has the lowest GDP per capita in the country (only half of the national average), and the highest unemployment rate. The region has one of the highest shares of the population is employed in agriculture, and the highest share of small farms. According to the typology described above (Fig. 1), in Latgale the dominant type of small farms are the peasant farms and diversified businesses.

Latgale region illustrates how unseen food is embedded in social networks and family. According to our expert interviews, an estimated 80% of food consumed by farm households is produced on the farm. For some products, as vegetables, eggs, potatoes, farmers share 10%–50% of what they produce with extended family, relatives and neighbours. Additionally, these farmers are using alternative outlets. For example, farmers' grown-up children living in cities bring food to their own

families or act as intermediaries selling surpluses to colleagues at the workplace.

The four products selected for this analysis—wheat, milk, honey, and potatoes—circulate within the food system outside of dominant market channels. However, the extent and purpose of the non-marketed products depends on the type of commodity and the type of farm. Wheat, an agricultural commodity dominated by large farms even in Latgale, is grown by peasant farms almost exclusively to be used as feed for their own animals. The wheat these farmers produce is not of the quality expected by food processors. However, farmers continue to grow this product to use in their own farm as animal feed, due to certain path dependency—they have been producing their animal feed and they continue to do so. Dairy, on the other hand, offers income-generation and trade opportunities for small farms. Milk is a typical cash product for small farms across Latvia. Most dairy farms in Latgale are peasant farms, although others are diversified or specialized businesses which have a stronger market orientation. Most of the milk produced in small farms is produced for commercialisation, and is sold via cooperatives or directly to a processor or via short food supply chains. The milk that is not sold in conventional supply chains, approximately 25% in peasant farms, is either consumed on-farm or fed to animals. Since milk can be easily processed, many farms produce dairy products which are then both consumed on-farm as well as shared and/or sold. We estimate that around 25% of the milk produced on small farms in this region is processed on farm.

Potato farming offers a different insight. Small farms in Latgale cannot produce to the scale, quality and aesthetic standards of global markets. Moreover, the local market is saturated with cheaper product from large farms and from abroad. However, small farms—particularly peasant farms—continue to grow potato because of its cultural significance and high (yet decreasing) importance in local diets. Because it can be easily stored, most of the production is consumed on-farm, and only some of it is sold on the local farmers' market or via informal networks (sold to regular customers at the farm's-gate or via extended social networks).

Honey is another product with high nutritional value, long shelf life and diversified exchange channels. Honey in Latgale is produced primarily (approx. 80%) in small farms with several hives, but there are also several bigger specialized farm apiaries with 250 and more hives. Production volume of honey (1014 t in Latgale) considerably exceeds the regional demand (218 t) and there is a significant surplus generated exactly by small farms. This creates a potential export niche for honey, facilitated also by expanding organic certification of bee farms. The diverse market and non-market channels for honey products include: family networks, farmer markets, roadside sales, local festivals, food fairs, specialized shops, internet sales and other. One of the unseen

aspects of honey is that it originates on small farms and travels far beyond the geographic borders of the region through less formalised exchange channels.

#### 4.2.2. Oeste

Small farming is a common activity in Oeste, a region that is favored for horticulture and fruit production due to deep soils, a temperate Mediterranean weather where water scarcity is not a major issue. The population density is high (161 inhabitants/sq.km in contrast to 19 in Latgale) and the settlement dispersed. Oeste belongs to the Metropolitan Area of Lisbon, corresponding to the proximity to a market of 2,8 M inhabitants. In Oeste, almost three out of four farms are 5 ha or smaller (Pordata, 2009), and the average farm size of these farms is 1.9 ha (INE, 2009). These farms are mainly family enterprises, with significant contribution from family labor. In Oeste the dominant type of small farms according to the typology shown in Fig. 1 are the peasant farms and specialized businesses.

The selected products for this analysis in Oeste are chicken eggs, pears, potatoes and wine grapes. As in Latgale, in Oeste they all circulate to some extent outside market channels, but with differences according to products and farm types. The predominant farm type in the region, specialized business (36% of the total), is also the one with the lowest share of unsold production (8%, see Table 2). The other types of small farms, which are less strongly market-oriented, tend to have a larger portfolio of food products and base their diets on what they produce, with surplus being sold. Excess food is channeled to family members, neighbours and relatives, in the form of food gifts and in work/exchange (for example, farm helpers might receive a bag of potatoes or pears or a few bottles of wine during the harvest).

Buying eggs is rare for small farms in Oeste. Even if specialized in another product, all small farms interviewed raise chickens for self-consumption or have a few extra chickens to sell eggs at the farmers' market and to gift to family members and friends.

Unlike eggs, most of the pears produced by small farms enter the market. Small farms production corresponds to 21% of all pear production in the region. Pear production in Oeste is organized by fruit producers' cooperatives, which collect and sell the produce from both small and large producers. With 95% of the national pear production, the pear value chain from Oeste is well organized, with cooperatives dealing with technical support, gathering the product, dealing with post-harvest and organizing the market channels. Only 5% of all the pear produced stays in the region, and the insignificant rate that remains unsold is consumed by the household, or gifted fresh or processed as jam to neighbours, friends, and relatives.

Potato is primarily a commercial crop for small farms in Oeste, with about 70% of the production going to cooperatives or small local retailers for sale, and 30% sold directly at farmer's markets, consumed at home, or gifted. Small farms are responsible for 25% of the potato produced in Oeste. Potato farmers put aside a part of the yield to consume at the household, give away to friends and relatives and exchange for other products. Like with eggs, even small farmers which do not produce potatoes for sale, grow potatoes for self-provision along with vegetables. We can estimate that at least 10% of potatoes produced in the region are consumed broadly inconspicuously by rural dwellers in Oeste without entering the market channels.

Wine is commonly consumed in Oeste, and 30% of the local production comes from grapes supplied by small farms. Processing and commercialisation is done overwhelmingly by cooperatives, meaning that only a handful of small producers makes their artisanal wine or wine-based liqueur at home for self-consumption. Instead, 90% confirmed consuming the wine from the cooperative to which they supply their grapes, receiving wine as part of the payment for the grapes delivered. Although not strictly food self-provisioning, the consumption of wine that is locally produced from local grapes –including some farmer's own grapes– is linking production to consumption via non-market channels in a culturally significant way. For example, giving

wine as payment in kind to friends, relatives and neighbours who help is a traditional and important part of the harvest.

The Latvia and Oeste cases illustrate the diversity of reasons that explain why small farms keep some of their production out of the market. The cases suggest that small farms adopt food self-provisioning due to social, economic and cultural drivers. Socially, the gift and exchange of production strengthens cohesion and linkages among community members, as is the case with honey in Latgale or eggs in Oeste. Other farms pursue self-provisioning from economic reasons, for example to reduce farm costs, including inputs and hired labour. This is the case with wheat in Latgale, which is used as animal feed, potatoes (in both regions), which are used for bartering, and wine grapes in Oeste, which are given in exchange for wine. Finally, food self-provisioning helps to reproduce collective knowledge and traditions, and enhance cultural identity (e.g. gastronomy and festivities) involving local staples (such as potatoes and eggs) as well as artisanal food processing techniques (milk and wine).

The two regions in study appear to tell two very different stories about small farming: on the one hand is Oeste, a thriving agricultural region where most small farms are specialized and strongly marketed oriented. On the other hand is Latgale, in the economic and geographical periphery of Latvia, where most small farms are relatively poor and are trying to survive amid an economic transition. And yet food self-provisioning, gifting and exchange play a visible role in both regions and across different products. Our results suggest that poverty is an important, but by no means exclusive, driver for food self-provisioning and the existence of informal networks of food distribution.

## 5. Discussion

Through this paper we provide evidence on the relative portion of food produced by selected small farms that is not sold to generate income, but consumed through non-market relations. We show that a considerable share of the food produced in small farms is 'unseen' by formal markets, and is instead consumed on the farm or given away. There is 'unseen food' in all food systems where small farms exist (Rivera et al., 2020), across all types of small farms (Guarín et al., 2020), and in all the European regions analysed (Guiomar et al., 2018). Small farms not only keep a share of their total production for their household, family, neighbours and friends, they produce food which is specifically and intentionally only for household consumption. This is done even by farms strongly connected to the market. These findings are in line with current literature on peasant farming (Fanzo 2017; van der Ploeg 2018; Samberg et al., 2016; Smith and Jehlička 2013), but bring new light and knowledge on small contemporary farms in Europe. In particular, our results suggest that combining market-driven production and self-provisioning production is characteristic of small farms. Food self-provisioning is neither accidental nor marginal; it represents away for small farms to access food without being dependent on global supply chains.

The evidence presented here suggests that food self-provisioning is not only, and not always, a result of economic need. Similar findings are discussed in literature regarding North American rural communities, where self-provisioning has been found not to be exclusive to low income small farmers or other low income families, but instead relatively constant across a broad range of income categories (Reimer 2002; Schupp and Sharp 2012; Teitelbaum and Beckley 2006; Tigges et al. 1998). For many new entrants to farming, self-provisioning is part of a lifestyle decision in which quality food from the farm to the household is important (Pinto-Correia et al. 2016, 2017; Sutherland et al. 2019; Wilbur 2014). A similar pattern has been observed more recently in countries of Eastern Europe (Jehlička and Daněk 2018; Smith and Jehlička 2013; Visser et al., 2015). These results point to the fact that self-provisioning is driven as much by cultural and lifestyle values as it is by material need. This is a central debate among those who study the informal circulation of food, and the role played by economic need

versus that of other drivers such as lifestyle and culture (Alonso et al., 2018). Our results confirm the limits of a one-dimensional view of the motivations for food self-provisioning (Teitelbaum and Beckley 2006), and suggest that there may be multiple motivations, including issues of meaning, self-worth and self-reliance, food preferences and culture (Alonso et al., 2018; Pinto-Correia et al., 2017; Smith and Jehlička 2013; Tigges et al., 1998). Relatedly, our results highlight the fact that some of the production that kept by small farmers is also distributed among kin and other networks through informal exchange and sharing, as has also been observed by other studies in Eastern Europe (Jehlička and Daněk, 2018; Balazs 2016). We have suggested three specific ways in which food can remain under the radar of modern agri-food procurement, and are therefore unseen: 1) food consumption in the farm, 2) food sharing, where food is given on the basis of social ties rather than payment, and 3) food exchange or informal trade, which may have different reasons, and where novel forms of relations often emerge. Based on the number and importance of small farms in the regions in our study, food self-provisioning is likely to have a positive impact on regional food and nutrition security, contributing to dietary diversification and probably strengthening the social fabric of rural areas.

The importance of food self-provisioning for the dietary diversity of the world's most vulnerable people is already widely acknowledged (Fanzo 2017; Ricciardi et al., 2018; Davidova et al., 2012; Jehlička et al., 2018). Our results confirm this contribution to production diversity and to the food consumption of small farm households in Europe. Furthermore, the diversity of products in small farms enhances the overall diversity of the landscape mosaic, with benefits for biodiversity and the provision of ecosystem services (Carvalho-Ribeiro et al., 2016; Ricciardi et al., 2018; Samberg et al., 2016). Additionally, food self-provisioning improves household resilience in the face of environmental and financial shocks, contributing to a wider social resilience in rural areas. Moreover, community ties and cohesion are also enhanced by the informal exchanges of food, and reciprocity (Davidova et al., 2012). Food self-provisioning may also have positive environmental consequences, due to the reduced ecological footprint of food which is produced and consumed locally, without being conserved, processed or transported (Ericksen 2008; Fan and Brzeska 2016; Hoffmann and Gatobu 2014).

## 6. Conclusion

In this paper we have provided new evidence about the importance of non-market channels and food self-provisioning by small farms in Europe. Drawing from a household survey from 24 European regions and case studies from Portugal and Latvia, we have shown that, while this food remains 'unseen' by statistics and global value chains, it is widespread and provides multiple benefits for farmers and their communities. Food self-provisioning has been described as 'quiet sustainability', due to the positive social and environmental outcomes that are not related to market transactions but also "not represented by the practitioners as relating directly to environmental or sustainability goals" (Smith and Jehlička 2013). From this perspective, it is surprising that food self-provisioning in European small farms has so far remained so much out of focus. In times of a global climate crisis and the urgent need to find strategies to cope with climate change and mitigate its effects, and when the future vision for rural areas of Europe is currently under discussion (ENRD 2021), such 'unseen' contribution to sustainability, happening across many rural areas in Europe, is worth making more visible and deserves further investigation.

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## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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