The new urban agricultural geography of Shanghai

Abstract： Agricultural geography has remained largely trapped in a neoclassical economic paradigm in which farm types have been understood to be predominantly products of location and global markets. This paper attempts to subvert this approach by reflecting on the emerging culture of small scale ecological farming in Shanghai. Such farms have been growing in number since 2000, driven largely by the availability of land and an increasing demand for safe and healthy food. While being a rational productivist response to a market opportunity, however, these farms reflect a break with conventional farming, in terms of their size, location and new farmer identities, as well as their socio-cultural relationships with customers and local communities. Using a survey of 45 such farms, the paper illustrates how and where new forms of farming, and the alternative food networks that they support, are colonizing the city. While being redolent of the growth in urban farming in many western cities, farming in Shanghai is driven by private individuals with personal and family, as well as broader community, motives. This suggests that while Shanghai may be experiencing the growth of alternative forms of what might be understood as civic agriculture, those involved are not primarily interested in the civilizing mission ascribed to many such movements. Rather, the new farms are hybrid service businesses in which the sales and marketing skills of the new farmers have allowed them to transform individual customers into members of food networks who form mutual co-dependent trust relationships that underpin the survival of the farms. Perhaps as a result of this, and despite strong demand for organic food, these new farms face a marginal existence in which business development is constrained as much by the strength and continuity of their food networks as it is by the quality and quantity of food that they can grow.

Keywords： Small Scale Organic Farming; Geographic Map; New Farmer; Shanghai

Introduction

It is now well over a decade since Morris and Evans (2004, p.96) observed that agricultural geography was something of an ‘awkward’ case in terms of the broader cultural turn in geographical analysis. While going on to observe that it had not entirely been bypassed by culturally-informed research, they did call for new work in agricultural geography that is concerned with both academic and policy questions about the future of agriculture and the food system. While this call has been partially addressed by a range of studies over the intervening years, particularly Lobley and Potter (2004) and Burton and Wilson (2006) on farmer identities, Ilbery, et al (2010) on property relations, Scott, et al (2015) and Schumilas and Scott (2016) on alternative food networks, and Poulsen (2017) on civic agriculture, there have been few studies that have considered how the geography of agriculture is changing in the ways identified by Morris and Evans (2004).

This paper seeks to address this gap in knowledge through an analysis of the changing spatial and cultural geography of 45 small, broadly ecological, farms[1] in the greater Shanghai area. In particular, in recognizing recent work on alternative food networks (AFNs) in China (Schumilas and Scott, 2016), the paper examines the links between the new agricultural forms typified by AFNs and their location within city regions. This is, therefore, not so much a paper about the forced relocation of traditional small Chinese farms (Day, 2008), but one that examines the emerging phenomenon of new farms locating in new spaces with new socio-cultural relationships between the producers and consumers of food of trusted provenance. It is also about the extent to which cities like Shanghai are witnessing the growth of a hybrid civic agriculture that is helping to redefine post-productivism and multifunctionality in farming (Wilson, 2009) as part of a new – or alternative - food movement that places considerable emphasis on the spatial and cultural connectedness of the producers and consumers.

The paper therefore seeks to contribute to a number of current debates, about the role and nature of civic agriculture (Poulsen, 2017; Spilkova, 2017), about nature-society relations, in terms of the multiple ecosystem services derived from organic agriculture (Stapleton, et al, 2014), and about the geography of an encultured alternative food network (AFN) in which location near to markets is less significant in terms of logistics than it is in terms of overcoming the cultural distance that has grown up between consumers and conventional farming practices (Sanders, 2006; Carolan, 2011; Wang, et al, 2015; Schumilas and Scott, 2016; Spilkova, 2017). The paper commences with a review of literature that seeks to place the work within the context of an emerging geography of urban farming. This is then illustrated through the empirical research on which the paper is based, which reports on the key characteristics of a number of small ecological farms in Shanghai. The discussion section draws out the main findings of the work, to illustrate in particular how new farmer identities are emerging and the impact that this has had on the location and organization of the farms. The final section of the paper draws out the significance of the work, in terms of addressing and advancing the agenda first set out by Morris and Evans (2004).

Literature review: development of small-scale organic farms in urban China

There is current interest in urban agriculture across much of the World (Zhang, et al, 2005; Viljoen and Bohn, 2014; McIver and Hale, 2015; Poulsen, 2017), particularly in terms of the

[1] By this we mean farms that use no inorganic or synthetic chemicals and self-identify as organic ecological, regardless of whether or not they are formally certified as such.

contribution that it can make to urban greening and food supply, as well as to local forms of community-building and food activism (Si, et al, 2014; Schumilas and Scott, 2016; Spilkova, 2017). While elements of this wider context are found in China (Shi, 2002), the growth there of small scale ecological farming and alternative food networks has mainly been driven by concerns about food safety and the failure of large scale (organic and conventional) agriculture to address these concerns (Paull, 2007; Klein, 2009; Liu, et al, 2013; Holdaway and Hussain, 2014; Yu, et al, 2014). Informed by demand from China's expanding and highly educated middle class, small scale ecological farming has grown in popularity, both as a source of safe food and as a site for '…nascent activists deploying grassroots community organizing strategies' (Schumilas and Scott, 2016: p.302). While Shi & Cheng (2010) claim that the first such farm and associated network was Little Donkey, a Community Supported Agriculture (CSA) initiative started in Beijing in 2009, fieldwork in Shanghai indicates that similar – if less high profile - approaches to ecological farming and food networks had started several years before this, at Muyu Farm and Biofarm. Notwithstanding these and quite possibly other small scale initiatives, it is clear that the establishment of Little Donkey increased the visibility of CSA and organic farming in China (Shi, et, al, 2011), introduced the idea that farming could be an occupation of choice instead of inheritance, and led to many new membership-based ventures being started over the last five years. For example, Shared Harvest Farm in Beijing, which now covers an area of over 300 mu (20 ha) and supplies more than 500 families; Letu Citizen Farm in Dalian, which covers 200 mu (13 ha) and also supplies over 500 members; and Zhuhai Green Finger Citizen Farm, which covers an area of 300 mu (20 ha) and has a membership of more than 300 families (see Hao, et al, 2004; Jiang, 2013; Chen, 2014).

Consistent with Schumilas and Scott's (2016) findings, the business models for these farms consist of a sustained market demand for safe (often organic) produce allied to a complex web of non-market social relations with a network of consumer-activists. For Johnston (2008), this is about collectivizing consumption, while Levkoe (2011) refers to collectivizing subjectivities around food and Miralles, et al, (2017) refer to the sharing economy. As Schumilas and Scott (2016: p. 305) observe, the collective nexus between producers and consumers found in relation to these farms suggests the emergence of '… hybrid market-civil society networks (that) identify and work towards common interests and reframe analysis towards collective and away from individualist responses to food system challenges.' Yet, while these hybridities may represent a new level of collective consciousness and action around food, there is no doubt that many of the farms involved in these networks remain at the margins of viability, as they do in many parts of the World (Groh and McFadden, 1997; Shi, et al, 2011; Rioufol and

Ravenscroft, 2012; Liu and Ravenscroft, 2015). While there are many contributing factors to the marginal viability of small farms, a dominant narrative in China is that relatively few farms have been able to secure their food networks in ways that provide them with a consistent market for their produce at a price at which they can afford to produce their food (Chen, 2013a, 2013b, 2013c). This is exacerbated by the highly individualized environment in which they operate, where some farms are able to subsidize their production costs, through philanthropy or the exploitation of family, volunteer and peasant labor. Indeed, anecdotal evidence suggests that many successful small farms are funded by people who pursue healthy living and have a commitment to improving the environment, but who leave the farming to others – who may or may not share their values (Schneider and Shumilas, 2014).

What this suggests is that there is a number of factors influencing the growth of small scale farms in urban China, some of which replicate more traditional farming, and some of which are new. Of these factors, the two key influences are that these new urban farms are dominated by farmers who choose to farm rather than simply inheriting from their parents; and that these farmers have a new hybrid approach to farming that remains committed to the production of food, but within a network in which customers are constructed as insiders, or members, who share a certain sensitivity to the ways in which food is produced (Liu and Ravenscroft, 2015). While commitment to organic and ecological farming is undoubted, these farms hardly associate with conventional approaches to certification and food standards. Indeed, they position themselves very much as the antithesis of the dysfunctional organic certification programs in China (Qiao, 2011), which are associated with big industrialized farms. This separation between the large and conventional certified organic farms and the smaller 'ecological' farms extends also to geography, with the large farms increasingly dominating remote rural areas where they can amass large land holdings, and the small farms locating in the city, as a means of connecting with educated and affluent urban populations (Shi, et al, 2011). Yet, despite this commitment to inclusivity within alternative food networks, there is evidence that this form of inclusion may not extend far beyond these populations:

> China's AFNs privilege connecting to land and to the urban entrepreneurs who operate farms over the peasants who grow the food and labor on these farms. However, it is not only the consumers in these networks who display a distrust of peasant farmers. Indeed, AFN organizers and CSA entrepreneurs at times also seem to contribute to the marginalization of peasants. For some of the CSA operators in these networks, peasant farmers are simply labor, and there is no attempt to integrate them into the decision-

making on the farms. (Schumilas and Scott, 2016: p.306)

Empirically, therefore, it appears that small scale farms and food networks in urban China are following a developmental path that is unique – in terms of the emphasis on food activism – while also replicating the privilege and power structures found in AFNs elsewhere (Schneider and Schumilas, 2014; Schumilas and Scott, 2016). This developmental path is clearly influenced by the growth of AFNs elsewhere, particularly in developing membership-based CSA, where the need for certification is replaced by trust relationships between producers and consumers (Shi, et al, 2011). From this, Chen (2013a) has found that the perceived value of CSA membership to Chinese people is little different to the value perceived by CSA members in other countries, leading him to conclude that the idea of caring for others, openness and transparence of production, frequent interaction with consumers, and the high quality of the products, has contributed to the construction of a new consumer trust in Chinese food, certainly for those involved in AFNs (Chen, 2013c, 2014). Schumilas and Scott (2016) take this further, by suggesting that the Chinese approach to food networks has fostered a new type of reflexive practice in which individuals can engage in relatively safe forms of activism that offer greater control over the food that they eat. In so doing, this level of engagement has enhanced consumers' understanding of the quality of the produce that they consume, which has led to increasing trust between farmers and consumers (Chen, 2015). This has allowed Jiang (2013), based on his own practices in Shandong Province, to claim that ecological farming, if properly managed, can offer a new paradigm of sustainable food production. It is this level of engagement and reflexivity that speaks to Morris and Evans' (2004) work, in confronting not only the former dominance of industrial economy within agricultural geography, but also the traditional spatial relationships between farmers and people that dominated our understandings of agricultural geography. Where once China's farms were perceived to be at a physical, cultural and social distance from consumers, there are signs that the urban ecological farming movement has begun to turn this around, to create a new geography of agriculture in which alternative food networks are increasingly part of a complex process of producing both food and community. Evidence is required, however, to assess the extent to which this is a phenomenon of a few well known and publicized farms and their privileged consumer networks, or whether these farms are emblematic of a broader transformation in China's agricultural geography.

Data generation and analysis

The emerging agricultural geography of Shanghai – in common with Beijing and many

other Chinese cities (Hao, et al, 2004) – is taking shape within an official green policy paradigm termed ecological civilization (Ravenscroft and Liu, 2017). While there is contestation around the precise meaning of ecological civilization (Huan, 2016), it is accepted that it is constituted as a set of policies designed to constrain certain types of development activity as a contribution to restoring ecological order, balance and diversity (Geall and Ely, 2015; Weng, et al, 2015; Parr and Henry, 2016; UNEP, 2016; Guan and Delman, 2017). While not related to farming per se, ecological civilization has favored the growth of small urban organic farms, on both derelict land and land of ecological significance (Paull, 2007; Liu and Ravenscroft, 2017; Ravenscroft and Liu, 2017). This means that there is a benign acceptance of agriculture as a legitimate use of urban space in Shanghai, particularly if it contributes to the politics of ecological civilization. This has elided with growing concerns about food safety (Holdaway and Husain, 2014; Chen, 2015; EU SME Centre, 2015) meaning that there is latent demand, particularly from middle class parents, for locally-produced organic food in which they can trust (Gracia & deMagistris, 2008; Shi, et al, 2011; Tuomisto, et al, 2012; Schumilas & Scott, 2016). Yet, despite this level of social and political acceptance of the use of urban land for the production of 'safe' food, there remains deep skepticism about the practice – and thus practitioners – of this approach to small scale agriculture (Liu and Ravenscroft, 2015), meaning that it remains a largely liminal and, thus, marginal and under-researched activity.

Traditionally, Chinese family farms have been small enough to require mainly family labor and large enough to feed the family. The new urban forms that are the focus of this study are not founded on either of these principles, but instead need to be at a scale that is sufficient for the purposes of the farmer. This can mean that there are some very small and specialist farms in Shanghai, but also some that are quite large by Chinese standards. For the purpose of this research, therefore, the unit of analysis was selected as an individual farm of not more than 500 mu (approximately 33 ha), located in the Shanghai Administrative Region, where claims have been made by the farmer about the use of ecological production methods. These methods are understood to avoid the use of inorganic and synthetic fertilizers, pesticides and herbicides, but not necessarily to involve the circulation of material and energy that are normally characteristic of ecological approaches to farming (Scott, et al, 2014).

Data on the existence and location of the farms was generated through personal contacts of the research team, internet searches and attendance at events such as organic farmers' markets. By March 2017, a total of 45 farms had been identified, using a snowball approach to identify additional farms and their associated networks. A further 4 farms were identified

that had been in operation at some point before this, but which had recently closed down. This is not an exhaustive list, nor is it of a known proportion compared to the total population of such farms. Rather, these 45 farms reflect those that have established networks of consumers and at least some presence on public media. They should therefore be understood as offering insights into the more established small scale ecological farming operations in Shanghai. As Figure 1 indicates, most of the farms have been in operation for around 5 years, with the majority of them commencing in their current form between 2009 and 2012.

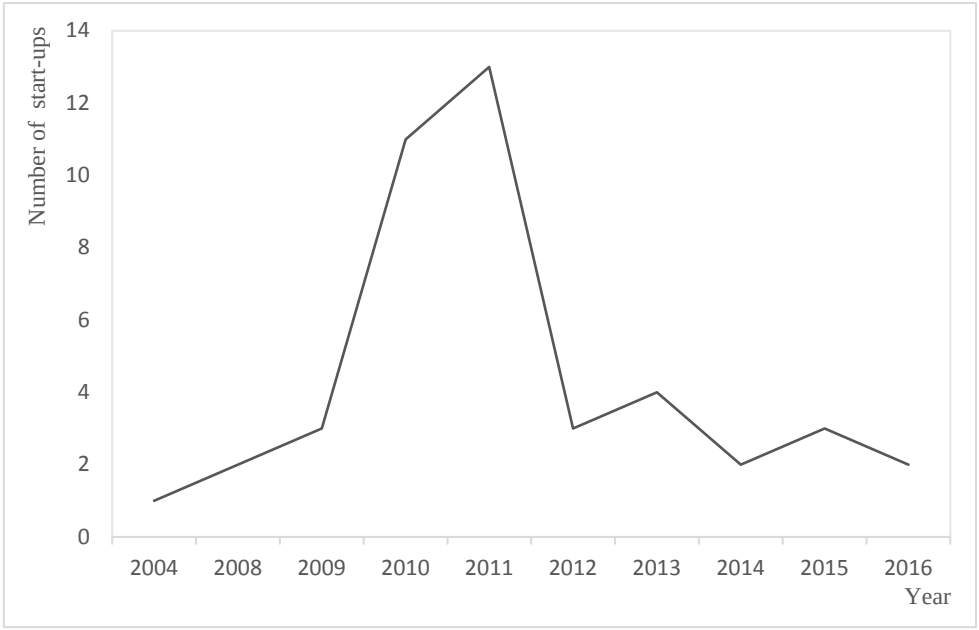

Fig.1. Annual Start-ups of small scale organic farms in Shanghai

In addition to the start date of each farm, basic information about the size, scale, product mix, ownership and routes to market was collected for all the farms, using the farms' websites, news reports, Taobao (online) stores, farmers' social media such as Weibo and Wechat, and – where they existed - consumer evaluations on farm websites. Data of these types were also available, for 28 farms, from the archives of local Organic Farmers' Markets and their conference transcripts. Field visits were made to 19 farms where there was extensive secondary information available, with farm operators, local farmers and village cadres interviewed. Interviews or conversations with the remaining farmers, or members of their networks, were conducted by telephone, email and social media (see Table 1 for details).

Table 1. Data-collection of small scale organic farms in Shanghai

Sources	Number of farms

Internet search		45
conference archives of local organic farmers market meeting		28
Interview by	On-site field survey and interview with farm operators, local farmers or village cadres	14
	Off-site interview with farm operators (mainly at the organic farmers' market)	5
	Telephone	22
	WeChat	12
	E-mail	4

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235 **Spatial distribution and size of small-scale organic farms in Shanghai**

236 The farms in our survey are mainly distributed in the suburbs of Shanghai, in areas
237 including Chongming Island, Qingpu, Songjiang and Fengxian (Figure 2). Indeed, Chongming
238 Island accounts for almost half of total number of farms (21/45), including the majority of the
239 larger farms (Table 2). The reasons behind this distribution are fairly clear: there is less
240 development and more land available in the suburbs, and both Chongming Island and Qingpu
241 District are areas of ecological protection. While close to the downtown area of Shanghai,
242 Chongming Island is highly ecologically significant as a feeding ground for migratory birds. Its
243 high quality land, water and air, allied to strict development control, make it well suited to
244 ecological farming. Similarly, Qingpu District is ecologically significant, as part of the Water
245 Resources Reservation Area in the Upper Region of the Huangpu River. Since this designation
246 was imposed as early as the middle 1980s, Qingpu has become a favored location for
247 ecological farming and for middle class families seeking to relocate from the city center.

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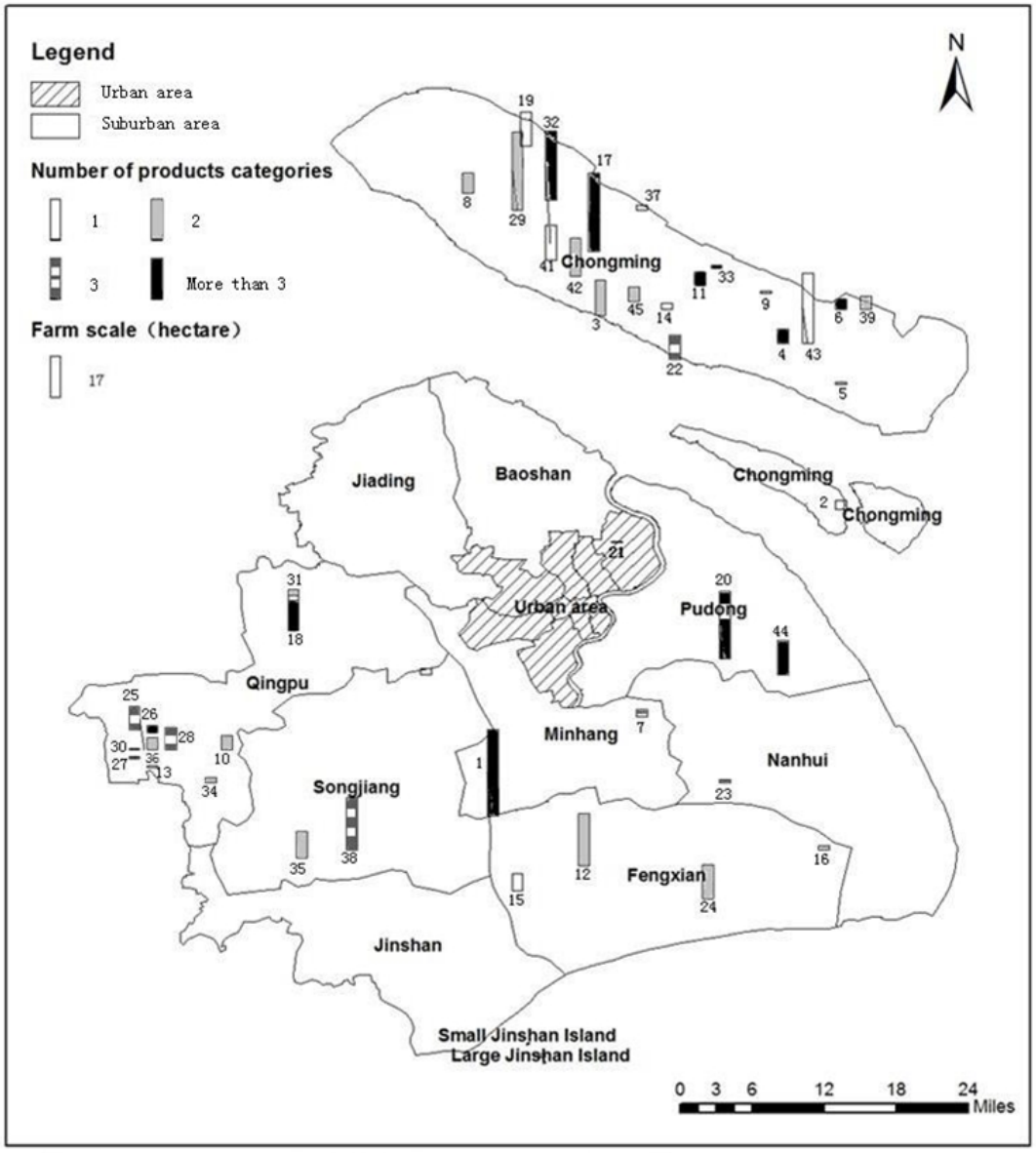
253 **Table 2. Sizes of small scale organic farms in Shanghai**

Scale /ha	Farm Quantity	Percentage	Locations		
			Chongming Island	Western Suburbs[1]	Other-Suburbs and Inner city
≤5	21	47%	38%	43%	19%

5-10	9	20%	45%	45%	10%
10-20	8	18%	50%	12%	38%
20-40	7	16%	42%	29%	29%
Total	**45**	**100%**	**47%**	**33%**	**20%**

Note: [1] the western suburbs of Shanghai include Qingpu, Songjiang, Jinshan and Jiading.

However, it needs to be understood that Shanghai is a large and congested city, meaning that travel times from the center to both Chongming Island and Qingpu District can be long (1-2hours by car), meaning that the farms located in these districts do not have particularly good access to markets all across the city. As a result, some farms have chosen to locate closer to the central city and residential areas. While access to land can be more difficult – the smaller farms are generally located closer to the city center - better infrastructure and good access to markets compensates somewhat, with very small specialist producers being able to benefit from small parcels of undeveloped ground (Chuangzhi Farm, in the city center is little more than an allotment garden of only 1.5 mu, for example).



1、Jin Garden
2、Mengtian Farm
3、Xiyuan Farm
4、Rose Farm
5、Pu&Su Farm
6、Tian'ai Farm
7、Yude Farm
8、Xin'geng Farm
9、Shanghai Kangyuandadi Eco Farm
10、Zhengrong Farm
11、Sanfendi Farm
12、Mengxi Farm
13、Muir Eco Farm
14、Xinbei Organic Farm
15、Letian Family Farm
16、Vedura Farm
17、500 families Farm
18、Lvyan Organic Farm
19、Lieyan Farm
20、Sunqiaohuilv Organic Farm
21、Chuangzhi Farm
22、Xile Farm
23、Sunflower Farm
24、Xifenyuan Farm
25、Cen'gu Eco Farm
26、Xin'geng Eco Farm
27、Bi'geng Farm
28、Yingxiang Eco Farm
29、Tianshelang Farm
30、Gump Farm
31、Mile Farm
32、Yilv Farm
33、DESIGNHarvests Farm
34、Chinese Palace Yellow Chicken Farm
35、Shanghai Guiyuantianju Organic Farm
36、Sheng'geng Farm
37、Chongming Meiwang Farm
38、Shanghai Huamaliu Eco Farm
39、Mengtian Eco tFarm
40、Smile Farm
41、Nongyu Eco Farm
42、Sijihaohua Eco Farm
43、Happy Farm
44、Biofarm Organic Eco Farm
45、Junheyuan Farm

Fig.2. Geographical distribution of small organic farms in Shanghai

The 'New Farmers' of Shanghai

About two-thirds of the farms were described as being operated by individuals or families. Other business forms included partnerships, corporations, cooperatives and NPO/NGOs (see Table 3). It is not clear how far these descriptions actually differentiate between business

forms, with Chen (2013c) suggesting in other work that there is little practical difference in China between partnerships and corporations, while many of the 'cooperatives' were actually run by individuals or families, but often with some volunteer labor from the local community and some form of membership-based market (hence the cooperative descriptor). Thus, while appearing to reflect a variety of business forms beyond the traditional family model, the actuality is that as many as 75% of the farms are broadly family-operated and entrepreneurial.

Table 3. The organization structure of small scale organic farms in Shanghai

Organization structure	Farm Quantity	Percentage
Individual / family	27	60%
Partnership	5	11%
Corporations	6	13%
Cooperatives	5	11%
Non-profit organization	2	5%
Total	**45**	**100%**

However, the dominance of familiar business forms should not be confused with traditional family farming. Indeed, only 8 of the 45 farmers were from local farming families, with the remainder being outsiders, often foreigners. These new outsider farmers are predominantly young (half of them being under 40 years old), highly educated, urban professionals, many with young families. None of them had been farmers before entering organic farming, so none of them have more than operational rights to the farmland. Similarly, few of the new farmers who are from other parts of China have any background in agriculture. Although some of them were born into farming families, they left the countryside at an early age, with little background knowledge and operational experience in agriculture. For example, Feng and Yang, who run Mengxi Farm, have backgrounds in IT and Oriental education, while others are finance directors, bankers and company directors. As Table 4 illustrates, those from a business and executive background tend to operate the larger farms, while 'blue collar' waged labor (technicians and clerks) tend to operate the smaller farms. While these farmers are all individuals with varying backgrounds, therefore, they are all largely 'new' to this type of farming and collective food networks and can, as a result, be described as Shanghai's 'new farmers.'

This is a highly unusual, if not unique, situation in China, given the dominance of local domicile in determining agricultural succession and access to farmland (Liu, et al, 2016).

However, while not necessarily being from farming families and having little farming experience, many of the new farmers without local connections – particularly those from outside China - have developed a range of skills associated with ecological agriculture and local activism. For example, Tian, the Taiwanese American founder of Biofarm, lectures for the International Federation of Organic Agriculture Movements (IFOAM) and is an acknowledged expert on organic soybeans. Similarly, Zhou, Manager of Jin Garden Farm, is an organic farming expert from Taiwan, while Bayat (from Switzerland) and Huang (from Singapore), who run Verdura Farm, are activists who specialize in microgreens for the catering trade. Zhu (from Singapore) established Xin'geng Ecological Farm as a Non-Profit Organization (NPO) to help traditional farmers improve the ecological diversity and productivity of their farms. These foreign farmers first got established because they understood that there was a demand for good food from expatriate workers living in Shanghai. This meant that they were adept at supplying what was required, with the right certification and routes to market.

Table 4. Careers of new farmers before organic agriculture

Careers of new farmers before organic agriculture	Farm Quantity	Farm Scale（mu）							
		≤50		50-100		100-300		300-500	
		Quantity	%	Quantity	%	Quantity	%	Quantity	%
In business – self-employed and executives of corporations	15	4	*27*	3	*20*	4	*27*	4	*27*
Technician or clerk	20	12	*60*	4	*20*	2	*10*	2	*10*
Educators/NPO/NGO	10	3	*30*	4	*40*	2	*20*	1	*10*
Total	**45**	**19**	*42*	**11**	*24*	**8**	*18*	**7**	*16*

Due to China's collective land ownership system, the new farmers who do not enjoy local domicile have had to rent farmland from the collective, or from local farmers. These are predominantly cash rents with limited security of tenure because there is no established land transaction platform for those without domicile, even in Shanghai. Just four of the 45 farms are run by people with local domicile who are able to use their family land in addition to land rented from their neighbors and village groups. The other 40 farms comprise only rented land, with the rentals often being from friends or friends of friends. Not surprisingly, all the farms that have ceased operation have been in the latter category, of 'unofficial' rentals. While there is no independent information on why these farms failed, anecdotal evidence indicates that in at least one case it was because the village committee 'reallocated' the land to a neighboring conventional farmer.

Farmer Motivations

The motivations behind the development of these farms can be categorized into three broad types: food safety; entrepreneurialism; and care for the environment. For some of those involved, the first two of these motivations are linked: they want secure access to safe and nutritious food, often for their children, and they can see that there is a business opportunity in this because many other parents feel the same. This has been fueled by the growing wealth of middle class Shanghai, itself bolstered by increasing numbers of incoming executives who have money and expect to be able to buy good, often organic, food. Thus, the initiative for these farmers has been first to satisfy their own needs and, second, to expand this to satisfy the needs of others as well. At the smaller end this has sometimes been categorized as cooperative farming, and is often associated with CSA and other forms of direct marketing.

For some farmers, the prime motivation is to achieve an economic return and develop a new business opportunity. Many of these people have not quit their main jobs and careers to enter farming but, rather, have used their capital and networks to find land and hire labor (sometimes from their families or the families of the previous farmer) to undertake all or part of the farming for them. As a result, these farms tend to be larger and more commercial than most of the farms in the study. For example, Sunqiaohuilv Organic Farm is nearly 400 mu (27 ha) and Huamaliu Ecological Farm is over 300 mu (20 ha). To some extent, these farmers tend to mirror conventional 'dragon head' businesses that rent land from farmers and then hire the farmers as waged labor, thereby inverting the previous distribution of power (Zhan and Andreas, 2015). They thus underpin the established pattern of many AFNs, in privileging elite and entrepreneurial power over that of the peasant farmers who grow the crops (Schumilas and Scott, 2016).

The third motivation, care for the environment, is shared by all the farmers but, for some, it is their primary motivation. These farmers have tended to locate in the special ecological zones. Some farmers argued that organic farming is a good way of treating non-point source pollution as it reduces the intensified input of chemical fertilizers and pesticides. The Cen'gu Eco Farm, based on a local NGO and run by its social enterprise, for example, has been dedicated to identifying an economic and ecological 'win-win' approach that allows them to evidence environmental improvement alongside economic viability. Similarly, Kang, the founder of Muir Ecological Farm, who has a background in ecology, has sought to improve the local environment by working with her neighboring villagers to create habitat suitable to

support the return of the firefly.

Whatever their motivation, most of the farms in Shanghai depend on hired labor to undertake the physical tasks, with many of the farmers doing very little of the actual labor. The most common approach is to use family labor supplemented by some additional local – often elderly and semi-retired – laborers and some casual labor for busy periods. For example, the day-to-day farming at Mengtian Farm is undertaken mainly by the owner's parents and nine local laborers, most of whom are women over 60 years old. By farming standards, the laborers are well paid, reflecting both the local labor market and the fact that farm laboring on an organic farm is hard physical work that few people want to do (Liu, et al, 2016). Some farms, such as Rose Farm, have to hire all their labor and, as with Mengtian Farm, rely heavily on older laborers who have previously worked on conventional farms. Wu, the owner of Rose Farm, reported that it took her a long time to convince her staff that organic farming is a respectable occupation from which it is possible to earn a decent wage. She now has eight permanent staff on the farm, all of whom are ex-peasant farmers.

Some farms also recruit volunteers in addition to hiring local labor. Usually the farmers offer free lodging and meals for volunteers, often with some free training but usually no cash payment. In these cases the volunteers are expected to work alongside the hired labor, getting involved with all kinds of farming. While the recruitment of volunteers tends to reduce labor costs, it is recognized that there are obvious disadvantages as well. For example, few volunteers stay for longer than a few months, which means that they are leaving almost as soon as they have been trained to contribute to the farm. Some volunteers are also selective about the types of farm work that they will do, especially where this involves heavy and dirty work. In addresses the costs and benefits of volunteers, Mengtian Farm recently decided to close down its volunteering program in favor of hiring short term labor when required.

A few of the larger commercialized farms are run by hired professional managers who oversee the operation of the farms and the deployment of labor. This tends to result in a larger proportion of permanent staff. For example, Biofarm has about 70 permanent laborers, with an additional 30 casual staff at peak times. Many of the permanent staff are from the villages where the land is rented; they thus have a long term connection to the land. There is relatively little evidence about the extent to which the hiring of peasant labor is a fundamental part of the business model of most of the farms, as opposed to an externality caused by the approach.

However, using labor that is skilled and cheap (by the standards of those who belong to the AFN) is consistent with many forms of CSA, worldwide, in which poor and peasant farmers subsidize the middle class elites who purchase and consume the food (see Groh and McFadden, 1977; Guthman, 2008; Rioufol and Ravenscroft, 2012).

Farm Type

A wide range of products is available from many of the farms (Table 5), including vegetables, grains, meat (mainly livestock and poultry), eggs and fruits. In most cases, however, individual farms produce one or two products, which invariably include vegetables (84% of farms). The staple vegetable is rice, although many farms also grow green vegetables and salad crops. Although over 70% of farms produce meat and eggs, this is usually on a small scale and mainly for domestic consumption or as a by-product of their overall farming system. Nearly one-third of the farms grow some fruit. However, on most farms fruits are a small part of the produce, and are managed as part of the vegetable rotation. Due to farm size and complex management requirements, few farms grow top fruits such as apples and pears. Nearly a quarter of the farms offer value-added products such as flowers and herbs, in addition to their staples. These include handmade tofu (Mengxi Farm), strawberry jam (DESIGNHarvest Farm), strawberry seedlings (Lvyan Organic Farm) handicrafts (Xing'eng Eco Farm) and medicinal materials (Biofarm). Chongming Sanfendi Farm is the only farm to produce aquatic products, including soft shelled turtle, crayfish and snails. None of the farms has a license to produce and sell processed foods.

Just three of the farms (Shanghai Kangyuandadi Eco Farm, Xifengyuan Eco Farm and Chinese Palace Yellow Chicken Farm) are certified organic. However, all the other farms claim to use organic, ecological or low-input approaches to farming, although it is unclear to what extent these claims can be substantiated. In general, the claims relating to ecological farming were mainly based on using organic rather than synthetic fertilizers, using natural means of pest control rather than inorganic pesticides and using human labor rather than herbicides for weed control. Many of the farmers went beyond this, by combining these actions into the on-farm circulation of material and energy. For example, on Mengtian Farm there are goats and chickens that feed on excess vegetables, with their manures composted to fertilize the land. In addition, the farm uses biogas slurry from a local biogas plant for irrigating the rice and vegetable fields. This is a low cost approach to applying nutrients that also reduces biogas pollution. The use of plants to address pollution is taken further at Cengu Farm, which is run mainly as an experimental farm for improving organic farming methods. Thus, following Scott, et al (2015), it is not clear quite how far any of these farms is really 'ecological', to the extent that on-farm circulation of material and energy is integral to the method of production, but it is certainly the case that most, if not all, of the farms are making attempts to cut their reliance on inorganic and synthetic inputs.

Table 5. Product categories of small organic farms in Shanghai

Product Types	Product Details	Farm Quantity	Percentage
Single	Vegetables	10	24%
	Meat	1	2%
	Total	**11**	**26%**
Two	Vegetables, Grains	7	17%
	Vegetables, Fruits	2	4%
	Meat, Egg	2	4%
	Vegetables, Meat	1	2%
	Vegetables, Others	1	2%
	Fruits, Meat	1	2%
	Grains, Meat	1	2%
	Grains, Others	1	2%
	Total	**16**	**35%**
Three	Vegetables, Grains, Egg	3	7%
	Vegetables, Fruits, Meat	1	2%
	Vegetables, Grains, Meat	1	2%
	Fruits, Grains, Others	1	2%
	Total	**6**	**13%**
Four	Vegetables, Fruits, Grains, Others	3	7%
	Vegetables, Fruits, Meat, Egg	2	4%
	Vegetables, Grains, Meat, Egg	1	2%
	Total	**6**	**13%**
Five	Vegetables, Fruits, Grains, Meat, Egg	2	4%
	Vegetables, Fruits, Meat, Egg, Others	1	2%
	Vegetables, Grains, Meat, Egg, Others	1	2%
	Total	**4**	**9%**
Six and above	Vegetables, Fruits, Grains, Meat, Aquatic products, Egg	1	2%
	Vegetables, Fruits, Grains, Meat, Egg, Others	1	2%
	Total	**2**	**4%**

*Others（Including processing products, horticultural crops and so on）

Markets and Sales

Virtually all of the farms in this survey use direct sales, mainly via membership-based distribution networks (Table 6). The membership systems found in Shanghai can be divided into two categories: a distribution share system; and a labor share system. In common with the CSA model found elsewhere, distribution share systems are based on consumers prepaying for produce (becoming scheme members) and receiving deliveries one or two times per week.

There are many different prepayment systems, in terms of how connected the members are to the farms, how long in advance payment is required, and to what extent members can vary their orders and choose what they want to be delivered. Labor share schemes are a form of share farming in which consumers (usually known as members) rent the land and 'allow' it to be farmed in return for a share of the harvest. Again Labor share schemes vary according to the degree of influence exerted by the members, but all of them involve the regular delivery of produce to members' homes.

In addition to membership schemes, many of the farms make use of internet sales, with virtual shops on Taobao (an open sales platform) and Wechat (a social media platform) linked to the distribution systems already in place for member deliveries. While these platforms do attract some new customers, they are mainly used by existing members wanting to vary their orders, or for farms to alert members to events on the farm. Some farms also attend organic farmers' markets although there is a general consensus that these are not effective routes to market given the lower prices charged by non-organic competitors in traditional food markets. Some of the larger farms supply the catering trade, although this is only felt to be viable where a substantial premium is available for fresh organic food. It is these farms that have gained organic certification. Finally, over half of the farms welcome tourists, to build trust by inviting consumers to see the farm at work, and to encourage sales of value-added items.

While often not involving the level of member commitment generally associated with CSA, the prepay membership schemes common in Shanghai have many advantages, to farmers and consumers. The farmers benefit from a degree of shared risk and a relatively stable market, with the support provided by long-term members helping the farms maintain production and operation. The consumers benefit by having safe and nutritious food delivered to their door. These relationships foster a level of trust between farmers and members that is unique in China's food chain. Even organic certification cannot deliver this level of security, meaning that the most successful farmers are those who can develop strong customer relations as well as producing consistently good food. This means that, for many farms, the level of production achieved is more a function of market size than growing conditions, with some farms reporting that they have idle land available should they be able to expand their customer base.

Table 6. Routes to market

Sales model	Farm Quantity	Percentage	Sales model	Farm Quantity	Percentage
Membership	42	93%	Organic Farmer's market	25	56%
Value added (such as picking, farmhouse diet, educational experience)	29	64%	Supermarkets, restaurants, hotels, etc.	11	24%
Taobao	30	67%	Wholesale	2	4%
Wechat	26	58%			

Analysis

Although there has clearly been rapid development of small scale ecological farms in Shanghai, the vast majority of these farms remain on the margins of viability. As the data indicate, the reasons why they struggle are a complex mix of insecurity (constrained access to lands and markets), social marginality and often a lack of technical farming skills and knowledge. Added to this is a national agricultural policy that favors subsidy to large scale commercial farming, whether conventional or certified organic. For most of those involved, insecurity is at the core of the problems that they face. This is very much the case with access to land, particularly given that very few of these new farmers have any family land to rely on, nor domicile claims to village land. Thus, while they have undoubtedly profited from the availability of small and marginal plots of land that are seemingly unattractive to conventional farmers, they are equally at the mercy of a land allocation system that is unsuited to outsiders and to external shocks such as speculation. This means that while new farmers can often get started, rising demand for land – whether for urban development or from local farmers wanting to increase their production – allied to short lease terms leaves them vulnerable to increasing rents or eviction and, thus, makes them unwilling to invest in improving their businesses. Expansion of their farms, even where they have a ready market for their produce, is often impossible without family land or moving to a new location.

Another constraint that many of these farmers face is a lack of knowledge and skills related to ecological and organic production allied to a scarce labor force that often lacks an understanding of the markets in which the farms operate. Given that most of the farmers try to combine the management of the farm with other work, they are overly reliant on others, particularly family, to do the physical farm work. This is very much the situation at Mengtian

Farm and Miller Farm, where the farm work is mainly undertaken by the elderly parents of the farmers, while the farmers themselves are responsible for customer service and financial management. In addition, most farms need to hire laborers, especially in the busy season. While some laborers are available, the relatively low incomes from agriculture, compared to the level of industrial wages locally, mean that fewer and fewer people are engaged in agricultural production, and those that do continue are ageing, or are unable to find work elsewhere. This is a general problem, even for high-profile and certified organic farms such as Biofarm. Indeed, it is such a profound problem that some enterprises, such as Shenggeng Farm, founded by the Green Oasis Commonwealth Organization, have moved away from a primary focus on production towards education as a means of mitigating the risks of not being able to secure sufficient labor.

In addition to these production-related issues, the most pressing concern for the majority of the farmers is how to establish and maintain a sufficiently large pool of trusting customers. Trust is at the core of this, because few Chinese consumers put much faith in the quality of the produce available to them, even when it has been certified organic (Wang, et al, 2015). A common story to illustrate this is the watermelon incident at T Farm: a Farmers' market in Shanghai had created a market for organic watermelon selling at three times the price of conventional watermelons. Three small organic farms including T Farm agreed to produce the fruit. However, it was uncovered by some consumers and confirmed by its volunteers that T Farm actually purchased conventional watermelons and passed them off as organic. While T Farm was punished and left the farmers market, trust in the market and in other small organic farms was badly damaged.

Rather than relying on certification, therefore, the majority of Shanghai's small scale farmers concentrate on word of mouth about their integrity and the strict, but uncertified, organic regimes that they follow (see Si, et al, 2014). In many cases these farmers go to considerable lengths through their food networks to build and maintain consumer trust. This is because they understand that they are in a co-dependent relationship with their consumers in which there is assumed knowledge about the food and an understanding that the consumer has a choice about whether or not to purchase and consume the food, just as the farmer has a choice about whether or not to sell to them (Wang, et al, 2014). However, not all of the farmers understand the basis of this co-dependency, particularly in failing adequately to understand the criticality of using formal institutions such as AFNs to transform consumer confidence in their food (Wang, et al, 2015). This is where the development of the AFNs in

Shanghai is critical to the future stability of many of the new urban farms – that building trust and the resulting customer loyalty is the best route to ensuring stability of demand in cases where the quality of the food is not automatically visible to the consumer.

Another aspect of trust concerns the extent to which the new farmers can get along with local villagers to ensure their support if there are questions in the future about who should occupy the land. Quite apart from the suspicion with which many villagers treat outsiders, there is also the extent to which organic and ecological approaches to agriculture are acceptable. Many of the new farmers have found that they are treated as 'fools' or rich urban timewasters for trying to farm without the use of chemical fertilizers and pesticides. Some outsiders have also reported incidences of theft and vandalism, resulting in them hiring additional staff to maintain security. Biosecurity is a particular problem with accusations from some new farmers that their conventional neighbors allow their inorganic fertilizers and pesticides to pollute organic crops, through both air and water borne transmission. In addressing this many of the new farmers have worked hard to cultivate friendships and respect from villagers. This has been via a number of activities, including offering work, paying for advice and offering an exchange of gifts. Some of the more established farmers have found that they have gradually become more accepted in their local communities, although they report that this does not necessarily give them the level of security that is afforded to traditional and conventional neighboring farmers.

Herein lies the key problem for these farmers: they gain access to marginal land because they farm at a small scale, and they farm at this scale because they lack the market and expertise to risk operating at a larger scale, but yet because they remain small scale they are at the mercy of village committees who do not always recognize the value that they bring to the local community. Of course, as the data indicate, many of the small-scale farmers are driven by individual and family needs, so the enthusiasm for up-scaling is not high. Up-scaling also presents challenges in terms of labor availability – given that there is relatively little scope for mechanization, even at substantially bigger scales. Yet the main constraint remains market access: at their current scale, the farmers can generate the levels of trust needed to maintain sufficient customers. If they expand too rapidly or too much they cannot any longer rely on personal connections, but instead need to build trust through developing brand loyalty. This is particularly tough in a social and cultural environment in which quality indicators such as organic certification are not trusted. As Wang, et al (2015) have observed, institutions such as AFNs can help transform trust in specific foods and their producers, but it remains very much

578 the farmers' responsibility to communicate their activity and values in ways that convince
579 customers that their food is what they claim and is thus worth the price premium over
580 conventional food. In addressing this, several farmers now seek independent third party
581 verification of their food, often through laboratory testing for the presence of chemical
582 residues.
583
584 **Conclusion**
585 We have tried, in this paper, to address the challenge posed by Morris and Evans (2004)
586 to identify a new agricultural geography that reflects the cultural turn that has been witnessed
587 in wider geographical analysis. As we have found in Shanghai, the elements of this new
588 geography are there to be seen: a new spatial location for small, mainly family, farms in the
589 city and its suburbs, allied with the emergence of new farmers with motivations associated
590 with ecological farming and the development of 'activist' networks of customers. At the core
591 of this new geography is an attempt to move beyond the production of healthy food to the
592 production of an active community that is engaged in the social and political processes that
593 underpin alternative food networks. As Schumilas and Scott (2016: p.310) observe, '… these
594 [AFNs] are laboratories where food consumers are becoming 'food citizens' and are centring
595 actions for the public good and decentring their private needs.' We would add that the new
596 farmers are every bit as much 'food citizens' who are also centring their actions on the public
597 good, although often through the use of peasant labor rather than compromising their own
598 private needs.
599
600 In economic terms, this cultural turn in farming has therefore brought farmers and
601 consumers together in a process that produces both food and community. As Wang, et al (2015)
602 have explained, this is very much a process of co-dependency built on developing mutual trust.
603 It is therefore reminiscent of the emergence of bridging social capital (Puttnam, 2000) and is
604 emblematic of a global movement towards what Carolan (2011) has termed 'food from
605 somewhere'. This new geography therefore reflects the fracturing of traditional agricultural
606 forms, as well as the disruption of intergenerational channels through which farming
607 knowledges have been communicated, with the majority of the new farmers having few family
608 connections with agriculture through which to learn their trade (Liu, et al, 2016).
609
610 Thus, what at first sight appears to be a fairly conventional spatial distribution of farms
611 around a large city is, quite possibly, the start of a new agricultural geography that is
612 characterized less by what is produced where, and more by who is doing the producing, and

why. And, in this case, the vast majority of those doing the producing are new entrants with little farming experience who market their produce directly to consumers via new food networks characterized by prepayment schemes and web-based communication. While this may not be so unusual in itself, the added layer of complexity is that many of the farmers are essentially consumers who became frustrated by the lack of safe local food and decided to address the problem by creating their own supply. Unlike most agricultural enterprises that maximize production within a wholesale business model, therefore, what we are witnessing in Shanghai is the emergence of a novel form of retail food business in which production is tailored to, and conditioned and constrained by, a bespoke market that is based on mutual trust between producer and consumer and exists only in that time and space.

This very much reflects a cultural turn in agricultural geography, away from the idea that farms operate at distance from their customers, both spatially and culturally, towards one in which these Shanghai farmers are both producers and consumers operating businesses that bring together contemporary marketing processes with quite traditional ways of farming. These farms are thus productivist in inclination, to the extent that food is the key element of production, and post-productivist in that additional services are offered that very much construct the customers as part of the production process. The farms are thus creative and social businesses that offer services to people who have identified themselves as 'members'. This service is certainly based on food production; however, it should more fully be understood as an input to people's sense of security and community with others – one of the steps that they take to create a safe and high quality life (Yan, 2012; Liu, et al, 2017). It is this that moves these farms beyond post-productivism and multifunctionality. They may embody both of these things, but the ambition of the farmers and customer/members is so much more: it is about understanding food as a component of a civic, or civilizing, lifestyle.

However, while the farmers may understand markets and marketing better than many conventional farmers, the market in which they operate is immature, volatile and highly differentiated (Si, et al, 2014). Indeed, they are not really markets in the conventional sense of the term, but rather associative means of creating sufficient mutual trust to underpin the distribution of food between the points of production and consumption. Through such mechanisms, the farmers seek to build and maintain loyal groups of food activists/food citizens who accept the provenance of the food that they receive, regardless of whether or not it is certified by an external agency. However, if the farmers wish to, or are forced, to move beyond this associative relationship, to find additional customers or income, they face a culture in

which claims about food safety, whether or not backed by organic certification, are given little credence. The emerging agricultural geography of Shanghai is thus both emblematic of a new cultural turn in the production and distribution of food, and also of the continuing insecurity faced by small farmers, wherever they are and whatever they produce.

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