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**Regulation of farmland conversion on the urban fringe: from land-use planning to food strategies.
Insight into two case studies in Provence and Tuscany.**

Coline Perrin
INRA, UMR951 Innovation,
2, place Pierre Viala,
F-34060 Montpellier, France
coline.perrin@inrae.fr

Abstract

In the literature on urban sprawl, few studies have looked at possible connection between effective protection of agricultural land and urban or community food strategies. Our case studies in Provence and Tuscany show that planning prescriptions and land-market control are insufficient to protect farmland on the urban fringe if regulatory approaches are not integrated into a global strategy for agriculture and food based on community involvement. Farmland protection policies are more effective if they combine top-down policies with bottom-up initiatives and if they recognise the multifunctional character of urban agriculture, especially with processed goods such as wine or olive oil.

Keywords

Farmland protection, land-use planning, urban fringe, peri-urban agriculture, public policies, multifunctionality, landscape.

Farmland continues to decline on the urban fringe despite rising public interest in urban food production (Morgan & Sonnino, 2010) and a long history of administrative restrictions on farmland conversion (Alterman, 1997). Urban sprawl and its unsustainable impacts have been extensively documented in Europe (European Environment Agency, 2006), particularly in France (Berque *et al.*, 2006) and in Italy (Indovina, 1990; Gibeli & Salzano, 2006; Settis, 2010). However, few studies have focused on cases of effective agricultural land protection in order to look for a possible connection with urban or community food strategies. Comprehensive and comparative case studies on urban agriculture are lacking (Sonnino, 2009).

Considering this land issue, the objective of this paper is to assess the integration of agriculture in land-use planning and the connection with community food strategies in two cases of successful farmland protection on the urban fringe. The results are based on comprehensive field research in two municipalities around Aix-en-Provence and Florence where we analysed the evolution of agriculture and the involvement of the local community in the regulation of farmland conversion through planning. In highly urbanized settings, how can we explain that some municipalities have managed to protect farmland for several decades? In these success stories, how was agriculture taken into account in local planning? How was food taken into account? Was farmland protection supported by the local community? By a food strategy? What are the barriers and facilitators for a connection between agricultural land preservation and urban or community food strategies?

Our comparative study in Provence (France) and central Tuscany (Italy) contributes to address these questions. We will proceed as follows: Section 1 presents our conceptual and legislative framework, Section 2 describes the research context and methods of the research, Section 3 illustrates with two case studies the successful integration of agriculture in local planning and the incomplete connection with community food strategies and Section 4 discusses the findings and highlights that farmland protection policies could be more effective and sustainable if planners took into consideration the multifunctional character of urban agriculture, especially for processed goods such as wine or olive oil.

1. Conceptual and legislative framework

Abundant scientific literature has dealt with agriculture located in and around cities. Researchers have described the encroachment of fertile farmland by urban development (Bryant & Johnston 1992; Charvet, 1994; Hoggart, 2005) and farmers' strategies to cope with or adapt to this new urban proximity (Beauchesne & Bryant, 1999; Inwood & Sharp, 2012). After having long seen agriculture and cities as adversaries (Daniels, 1999; Salomon Cavin & Niwa, 2011), researchers and planners have recognised the multiple role of urban agriculture, i.e. food production in growing urban spaces, in or close to the city (Mougeot, 2006; van Veenhuizen, 2006; Pearson *et al.*, 2010).

In order to protect farmland from urban sprawl, a variety of policy instruments have been developed and tested, including the public acquisition of land, regulatory approaches and incentive-based approaches (Alterman, 1997; Bengston *et al.*, 2004; Frenkel, 2004). Literature shows that land-use planning is not sufficient in itself for various reasons depending on the country.

In North America, farmland protection programs have been put in place from the 1960s onward (Fureseth & Lapping, 1999; Caldwell *et al.*, 2007). Except in a few cases such as Oregon, regulation alone was insufficient to maintain large areas of agricultural land use within or close to growing cities. In the United States where landowners are entitled to compensation for "regulatory takings", smart growth approaches now encourage public acquisitions, which are complementary to regulation (Daniels & Lapping, 2005).

In Europe, where no such compensation exists, most governments have resorted to regulatory approaches. However, this land-use planning approach has often failed to avoid urban sprawl. Zoning criteria based on density, morphology and urban-rural dichotomy of the territory proved "inadequate for addressing the characteristics of the interface's 'patchwork' structure" of the urban fringe (Allen, 2003:137).

In France and Italy, farmland conversion is regulated by municipal authorities through binding zoning plans. The legislative framework is actually very similar in these two countries: the Central State introduced municipal development plans with exclusive agricultural and/or forestry zoning in 1967¹ (Renard & Comby, 1990; Graff, 2001). After gradual decentralization, land-use planning powers were transferred to municipalities in 1983² in France and in 1995 in Tuscany³.

This municipal level of spatial planning has been criticised in France (Renard, 2008; Castel, 2007) and in Italy (Gibelli, 2006; Baldeschi, 2008) because local authorities are subject to pressure from

¹ Municipal zoning was set up in 1967 at a national level by the *loi d'orientation foncière* in France (law 1967/1253) and the *Ponte* law in Italy (law 1967/765).

² Law 1983/8 and 1983/663.

³ The date may vary by region in Italy, because planning powers were first transferred from the Central State to the Regions in 1972 (decree 1972/8). Then Tuscany decided to transfer them to municipalities in 1995 (regional law 1995/1).

landowners and developers who speculate about the conversion of agricultural land. Without any formal change to the law, French public officials point out that courts increasingly back landowners' challenges against local authorities (Jacobs, 2008a). Local arrangements between public and private actors sometimes exacerbate urban sprawl because municipal land-use regulations are subject to variances, rezoning, special exceptions and conditional uses (Martin *et al.*, 2006; Peltier, 2010). Around many suburban villages, the urban envelope has become fuzzy, with no clear spatial delimitation between housing and farmland. Planners and researchers also stress that urban development and environmental issues cannot be addressed by municipal authorities in isolation from the wider urban region (Janssen-Jansen, 2011) especially since municipalities are often in competition with each other. "There is a nightmare in the closet of French planning: urban sprawl" (Vanier, 2008:37).

The growing awareness of the limitations of regulatory approaches and the potential contribution of agriculture to urban sustainability lead us to suggest a multifunctional land-use approach to agriculture and food. To protect farmland on the urban fringe, land-use planning needs to be complemented by other policies or measures, and a broader legislative or participatory framework. Aubry *et al.* (2012) highlight that urban planners are increasingly interested in agriculture around cities but that they often lack knowledge on the various roles performed by each farming system, depending on their intra- or suburban location. Bryant and Granjon (2007) stress the importance of open inclusionary dialogue with "the many actors who have an interest in, and an influence on, agricultural production and other functions of farmland in such areas, including farmers, their representatives, municipal councils and planning departments, urban consumer groups, and environmental interest groups". The enhanced involvement of community stakeholders can help to better take into account the multiple functions of agricultural areas in land-use planning (Renting *et al.*, 2009). Multifunctionality is in fact a key element in order to maintain agriculture as part of the urban system rather than conflicting with it (Pearson *et al.*, 2010). However, importance of each function differs between case studies, according to the national context (Bills & Gross, 2005) or to the farming system (Beauchesne & Bryant, 1999). Beside landscape, leisure or environmental functions, food production remains an important function of urban agriculture in the context of a "new food equation" (Morgan & Sonnino, 2010). With growing consumer concerns about food quality, food safety or the impact of food on health or on the environment, urban food strategies have emerged in recent years, some of which integrate farmland protection programs.

What should a multifunctional land-use approach to agriculture and food include in local planning? Could urban or community food strategies reinforce farmland protection by offering a new framework for the land issue on the urban fringe? To contribute to this scientific debate, this paper compares two case studies of successful farmland protection, assessing the integration of agriculture in land-use planning and the potential connection with community food strategies.

2. Context and methods of the two case studies

2.1. Study areas

The case studies presented in this paper are located in the surrounding area of Aix-en-Provence and Florence, two city regions that share urban and agricultural characteristics. Regarding urbanisation, the two cities have spread over the surrounding countryside so that small towns and rural villages located nearby have become suburbs or metropolitan villages, as around many European cities (Antrop, 2004). This process of urbanization is accompanied by speculative mechanisms on the land market (Jarrige *et al.*, 2003). Landowners – many of whom are farmers in these two city regions – know that they will earn more money by selling their property to developers claiming space for housing and other urban activities than by producing food for city dwellers. In the planning field, the comparison was also made possible by the above mentioned similarity of the two legislative frameworks. Regarding agriculture, these two city regions are similar in terms of the range of products (with wine and olive oil

recognised as quality products by PDO⁴ or PGI⁵ certifications) and the tourist attraction of the food culture and of the agricultural landscape. Around both cities, agriculture has declined (Table 1): arable land has been reduced since 2000 by 13% in the Aix-Marseille metropolitan area⁶ and by 15% in the Florence metropolitan area⁷.

In this context of urbanization and decline of agriculture on the urban fringe, we focus in this paper on two municipalities with the best preservation of agricultural land since 1960: Fiesole near Florence and Puylobier near Aix-en-Provence. We selected these case studies following the advice of local planners, who emphasized, within each city region, the specificity of these two municipalities where local authorities had made a clear choice to protect farmland through local planning. In both cases, agriculture still covers more than 30 % of the total land area, with mainly olive groves in Fiesole and vines in Puylobier (Table 2).

Fiesole is a small town of 14,000 inhabitants located on a scenic height just north of Florence (Figure 1). The municipality is famous for its panoramic view of Florence and its interesting archaeological remains. In the planning field, it is recognised in Tuscany for innovation in landscape preservation (Gorelli, 2004). Despite its proximity to Florence, the high-value landscape of hills, dotted with beautiful villas surrounded by olive and cypress trees, has survived more or less intact since the 15th century (it looks similar to the fresco 'Procession of the Magi' by Gozzoli in Palazzo Medici Riccardi, Florence). Most of the 183 farmers recorded by the 2010 census have other sources of income. Those having only a few olive groves work in another sector. Larger estates supplement agricultural production income with on-farm tourist accommodation (agri-tourism) and other direct farm sales of produce and services to consumers.

Puylobier is a village of 1,800 inhabitants located close to the famous Montagne Sainte-Victoire depicted by Paul Cézanne (Figure 2). Only 15 minutes from Aix-en-Provence, Puylobier has not yet seen the same degree of residential development as the surrounding municipalities. Instead, the vine area is clearly demarcated from the residential areas and Puylobier still hosts 54 farmers: most of them grow grapes for the co-operative winery and a dozen winemakers have larger wine estates, their own winery and a cellar open for wine tasting and direct sales.

2.2. Research methodology

To examine the possible synergy between agricultural land protection and community food strategies, we chose to focus on the municipality level, because it is the level at which binding zoning plans are discussed and approved in both regions.

Primary data were gathered through public archives consultation and in-depth interviews carried out over the period 2004-2007 within the framework of a doctoral research focusing on seven suburban municipalities around Aix-en-Provence and Florence (Perrin, 2009).

We had access to the public records and historical documents on planning that the municipalities had kept since 1960, especially municipal council reports and old urban development plans. In these documents, we analysed the status of agriculture, the delimitation of exclusive agricultural zoning and the rationales that legitimise the protection or the conversion of farmland.

⁴ Protected Designation of Origin (PDO).

⁵ Protected Geographical Indication (PGI).

⁶ The Aix-Marseille metropolitan area encompasses 140 municipalities from the three *départements* of Bouches-du-Rhône, Var and Vaucluse (INSEE PACA, 2003).

⁷ The Florence metropolitan area encompasses the three provinces of Florence, Prato and Pistoia, it was defined by the regional decree 2000/130.

We also conducted 36 in-depth interviews with key players involved in agriculture and/or planning in Fiesole and Puyloubier. These include 19 interviews (12 in Provence and seven in Tuscany) with officials of state departments, regional or metropolitan governments and with the technical staff of farmers' organisations (especially PDO or PGI organisations). At this supra-municipal level, interviews revolved around the evolution of agriculture and its functions on the urban fringe, the ways to protect and promote agriculture close to the city and the connections between planning, agriculture and food in public policies. These also include 10 interviews in Puyloubier and seven in Fiesole. At this municipal level, interviews with mayors and four technical staff focused on the history of local planning, the integration of agriculture in the land planning documents and their vision of the future of local agriculture. Interviews with nine farmers and two members of the board of the wine co-operative aimed to understand their land management, their productive and marketing strategies and their interpretation of the proximity to the city as a threat to or an opportunity for agricultural development.

In the following section, we trace the integration of agriculture in local planning over the latter decades in the two municipalities of Fiesole (3.1.) and Puyloubier (3.2.) and we then discuss the possible connections with community food strategies (3.3.).

3. Results: two success stories of agricultural land preservation through local planning

3.1. Urban agriculture for heritage: cultural and historical landscape protection in Fiesole, Italy

In Fiesole, the municipality has managed to avoid sprawl and protect the agricultural land close to Florence because the local community became aware very early on of the cultural function of urban agriculture, whose landscapes improve the overall character of the city and are part of the local historical heritage. To achieve this, the municipality implemented very strict zoning codes in the successive development plans. However, this farmland preservation strategy was not obvious and it has its own unique, path-dependent history.

In the 1960s, the municipality presented a first development plan with many building opportunities. At this time, "landscapes and other distinctive features of the place [were] subordinated to the needs of growth and modernisation"⁸ (Gorelli, 2004:28). The first project of *piano regolatore generale* issued in 1968 forecasted a demographic boom (from 11,000 to 40,000 inhabitants) and planned for new housing developments not only around the existing urban areas, but also scattered in the agricultural area where landowners had requested building permits. This plan triggered wide controversy between those who defended urbanization – legitimated in the public debate by the urgent need for decent housing for the working class – and those who defended the agrarian landscape and warned against the 'invasion of cement' that risked destroying a cultural heritage. As in other "gentrified and 'aestheticized' rural areas of the global north", conflicts over landscape arise especially because the aesthetic and environmental values of the place "derive from a totality of many individual landholdings" (Walker & Fortmann, 2003:471). The conflict in Fiesole involved local stakeholders and external experts: planners and faculty members of Florence University (Edoardo Detti, Giovanni Michelucci), environmentalists (such as Italia Nostra, a non-profit organization dedicated to the preservation of Italian cultural and environmental heritage) and politicians from the communist party (long dominant in central Tuscany) and from the Republican opposition. This public debate lasted for two years and was reported in several regional (*La Nazione*) and national (*L'Espresso di Roma*) newspapers.

This controversy led to the revision of the plan. In 1974, the published plan defined much stricter zoning, authorizing dense urban developments in the valleys close to Florence and forbidding any transformation of the agricultural land on the hills. In the rural section of the plan, landowners were neither allowed to change the use of the land nor to extend the buildings or even to sell their property

⁸ "il territorio e i paesaggi sono variabili dipendenti rispetto alle esigenze della crescita e della modernizzazione".

to non-farmers. Since 1974, several revisions of this plan have always firmly protected agricultural land. For example, the 1985 revision established administrative restrictions on rural land fragmentation and on the division of rural buildings into several dwellings (Perrin, 2007). The municipal council used every new regional law and new regulatory tool to protect the cultural landscape.

Fiesole's planning history can be seen as a success story. Thanks to early mobilization and awareness raised in the community, the municipality has protected agricultural land through administrative restrictions. The 1968 controversy is the key element of this success; it triggered a process of territorial heritage building (Magnaghi, 2000). The public debate created 'antibodies' protecting Fiesole in the long term from urban sprawl and avoiding "profound alteration or destruction of its territory"⁹ (Gorelli, 2004:29). The reasons for farmland preservation are very different in Puyloubier, France.

3.2. Urban agriculture for the future: farmland as the foundation of a sustainable community strategy in Puyloubier, France

In Puyloubier, the municipality has managed to avoid sprawl by putting vineyards and wine at the centre of a long-term sustainable community-supported strategy that recognizes the multifunctional character of urban agriculture.

The mayor has played a major role. As the son of a local grape grower, but working in Marseille as civil engineer in a state department, he is an adequate mediator between farmers and new city dwellers, capable of reconnecting agriculture and urban life. Since his first election in 1995, he has taken three directions in order to guarantee the long-term preservation of the vineyard:

- He has changed the urban development plan and adopted specific regulations against sprawl: he promotes urban renewal by not giving building permits outside the village, even to farmers, and suppressing the low-density urban zones – residential zones in which the predominant lot size was large, between 2,000 and 10,000 square metres – before they were suppressed at a national level in 2001.
- He has promoted the vineyards and the local wineries as distinctive features of the area, along with the Montagne Sainte-Victoire. He has persuaded grape growers to invest in the co-operative winery in order to improve the quality and the marketing of the wine. Fortunately, French rosé wine has enjoyed an economic boom. In addition, since 2005 wine bottles may boast a 'Sainte-Victoire' label because the area was recognised as a specific *terroir* inside the protected designation of origin 'Côtes de Provence'. Thus, farmers are able to derive good revenue from their grapes.
- He has involved 12 new residents in the municipal council along with two farmers so that planning decisions are taken by stakeholders and no longer by shareholders (*i.e.* landowners).

In 2008, he pledged to "support agriculture" in his platform, which is unusual in peri-urban areas and he was re-elected for the third time with 92% of the votes.

The Puyloubier case illustrates a territorial development strategy based on the link between product and place, "essentially motivated by a desire to develop markets for products with distinct origins in order to protect livelihoods, build territorial identity and secure community cohesion" (Ilbery *et al.*, 2005:118). Besides the mayor, a broad variety of actors is now committed to the defence of agriculture: vineyard preservation has become the common good for the community, the way to maintain an appreciable landscape, an economic activity for grape growers and a quiet environment for the other residents. This long term cross-sectorial strategy is supported and supplemented by short-term initiatives with synergetic potential. For instance, winemakers have organised a car rally – like a treasure hunt in the vineyard – every autumn for ten years in order for city dwellers to discover

⁹ "la alterazione profonda del suo territorio o la sua distruzione".

the local wineries. Such collaborative activities recreate urban-rural linkages and enhance the vitality and the cohesion of peri-urban communities.

In this success story of farmland protection, the political commitment of the local government was the most important ingredient in the recipe, as stated for some urban food strategies (Rocha & Lessa, 2009) alongside with community involvement. However, this sustainable community strategy that connects land-use planning and agriculture development issues does not directly integrate the food issue.

3.3. A separation between land, agriculture and food issues in both case studies

Looking now at the possible connections between farmland protection, urban agriculture and food strategies, these two success stories need to be qualified.

In the Fiesole case, the planners took into account the cultural function but not the productive function of urban agriculture. Their landscape aesthetics planning approach did take into account farming as a socio-economic activity from which farmers and their families had to earn a reasonable living. As a result, Fiesole counts numerous “degenerating agricultural landscapes” (Bryant & Granjon, 2007): many olive groves slowly turned to wild land and the dry-stone terraces collapsed. For a long time, landowners donated their olive groves to farmers in exchange for produce, as olive oil was a keystone element of Tuscan food. This informal small-scale sharecropping system, based on personal trust-based relations, helped to maintain urban agriculture. Now, landowners cannot easily find a farmer willing to grow olive groves in Fiesole because the trees are located on steep slopes with difficult access and no irrigation. In addition, consumption patterns have changed: more and more Tuscan people buy olive oil instead of producing it themselves (or receiving it from the extended family). Some wealthier landowners still maintain the trees as a backyard garden for aesthetic purposes, but many do not have the time or the money to do so. The risk of abandonment is reinforced in Fiesole by the high cost of the land that tends to ‘freeze’ farmland, preventing access to agricultural productive activities. Beyond the number of acres protected from urbanization, a very small amount of agricultural land remains in active farming. In the long term, such abandonment of the olive groves could lead not only to the degradation of historical landscapes, but also to an increase in biodiversity and natural habitats – an unforeseen benefit.

The Fiesole case illustrates the limits of a narrow planning approach. Thanks to landscape and heritage activists, urban agriculture has always been integrated in local planning, but only for its cultural function, never for its productive function. The municipality wanted to keep the trees with no regard to growing the groves or producing oil. The role of the city planners was limited to ensuring the protection of agricultural spaces from urbanization. The issue is now to define activities and tools to promote the insertion of urban agriculture not only into land management but also into a multifunctional land-use approach, linking planning with future opportunities for local food production.

Urban food strategies are emerging currently in Florence, connecting land, agriculture and food issues, but in other localities. For example, an agricultural park between Florence and Prato creates new “synergies between restrictions of land use and land valorisation projects, involving local administrations, civil society organizations, and consumers/citizens around the food sovereignty principle” (Brunori *et al.*, 2012). The project¹⁰ includes allotments for family gardening and support *Gruppi di acquisto solidale* (GAS, Italian equivalent to CSA, Community Supported Agriculture), with direct sales of local fruit, vegetables, cheese and meat.

In the Puyloubier case, land and agriculture issues have been linked within the municipality, but not with the urban food strategy of the Aix-en-Provence metropolitan area. Puyloubier is member of the

¹⁰ <http://www.parcodellapiana.it>

Communauté du pays d'Aix (CPA), the institution of inter-municipal cooperation that gathers 34 municipalities around Aix-en-Provence since 2000. The CPA leads parallel but distinct strategies on agriculture and food issues; only the strategy regarding agriculture is linked to planning.

Regarding agriculture, the main initiative of the CPA deals with agricultural land management: since 2005, the CPA has a partnership with the farmers' representatives (*Chambre d'Agriculture*) and a state agency (SAFER) in order to monitor the land market and mitigate real-estate speculation and processes of appropriation of agricultural land by non farmers: the public may preempt proposed private land sales (Jacobs, 2008b). However, this policy is not linked to any food initiative and its annual budget of about 30,000 EUR is insufficient to prevent speculative mechanisms. Moreover, the CPA prepares a master plan, a guideline for urban development of the metropolitan area, but binding plans and building permits are still decided by the mayors of the respective municipalities. As in other cases (Hutton, 2011), the power of the inter-municipal government body is limited by consensus-building practices amongst the constituent municipalities that want to keep a grasp of their own power.

Regarding food, the CPA participates in the RurUrbAl project, a European crossborder co-operation project developed within the framework of the MED Program (2007-2013), which intends to design a government strategy for the sustainable and balanced local development of peri-urban territories through valuing, marketing and promoting the consumption of local agri-foodstuff resources¹¹. This urban food initiative focuses on market gardening by implementing a local platform for the direct sale of fruit and vegetables to consumers, restaurants and small retailers. This initiative is thus dedicated to only a fraction of local farmers (25 participants in 2010) and does not involve many local olive oil producers or winemakers around Aix-en-Provence.

Furthermore, when CPA representatives communicate on this project, they do not even mention food or the possible contribution of local agriculture to urban food supply. The CPA values agriculture around Aix-en-Provence through

- "An identity issue, based on the current balance between urban and rural;
- A territorial and environmental issue, based on the dynamic use of natural and agricultural areas facing an intense land competition for urban expansion;
- A social and economic stake, by generating more than 180,000,000 EUR of sales per year and nearly 10,000 direct or indirect jobs"¹².

Hence, in Aix-en-Provence, public policies consider agriculture issues and food issues separately.

4. Discussion and conclusions

The results reported here provide some explanations for the successful protection of farmland on the urban fringe and for the incomplete integration of urban agriculture in urban or community food strategies. The discussion highlights the necessity of a multifunctional land-use approach to urban agriculture and food in local planning.

4.1. Combining top-down policies and bottom-up initiatives for enforcing farmland protection

¹¹ <http://www.rururbal.eu/>

¹² "Un enjeu identitaire, reposant sur cet équilibre entre urbanité et ruralité, un enjeu territorial et environnemental, fondé sur une occupation et une utilisation dynamique des espaces naturels et agricoles, face à une très forte pression foncière, un enjeu social et économique, en générant un chiffre d'affaires annuel de près de 180 millions d'euros et près de 10 000 emplois, directs, indirects et induits" (www.rururbal.eu/paysdaix/).

Our results confirm and extend existing research findings on the role of the community stakeholders' perspectives on multifunctional agricultural landscapes (Bills & Gross, 2005).

The Puylobier and Fiesole cases combined both top-down and bottom-up processes. On the top-down side, strong political will resulted in strict land-use management: municipal authorities used specific prescriptions in their urban development plan to preserve agricultural land. On the bottom-up side, the mobilization of civil society resulted in community initiatives and the involvement of a wide set of actors in the definition of a common vision for urban agriculture. However, the two farmland protection strategies are not equally effective in the long run.

The Fiesole case highlights the path dependency of planning choices: if the first plan projected in 1968 had not been cancelled after the public debate, the Fiesole hillside would have been built up, just like the other municipalities in the surrounding area. One planning decision taken four decades ago thus has a crucial impact on today's landscapes. The Fiesole case emphasizes the need for open debates including stakeholders and external experts in order to raise awareness of the importance of urban agriculture. Additionally, it points out the risk of an exclusively aesthetic approach. In the Fiesole case, the main driver for farmland protection was the preservation of cultural heritage, but since 1968, the community has neglected the productive function of urban agriculture and it has not succeeded in maintaining farmers on the land. These results corroborate the need for further historical studies on the "interplay between spatial planning, landscape representations and land use" on the urban fringe (Qviström, 2010:219).

In Puylobier, unlike in Fiesole, urban agriculture has been supported by a multifunctional land-use approach that considers its productive, cultural and ecological functions. Urban planning choices have been coherent with agricultural development and supported by innovative governance at the municipal level. This community-supported farmland protection strategy seems to be more sustainable in the long term, even if it is not linked to a food strategy. The success factors were

- A talented mayor, who transcended the boundaries of urban and rural action, assuming the leadership for supporting urban agriculture;
- New forms of collaborative arrangements between farmers and city dwellers, leading to the promotion of local wine and a multifunctional land-use approach as keystones of a territorial development strategy.

4.2. From farmland protection to urban food strategies: two major obstacles to overcome

The Puylobier and Fiesole cases combine political will, skilled policy and a shared and long-term vision for agriculture. However, two major obstacles prevent the integration of urban agriculture in a coherent and holistic food strategy:

- *A scale issue in public policy:* in Provence and in Tuscany, urban planning is controlled by the municipality whereas agriculture and food supply are supported by national or regional policies. Farmers come to the city hall mainly for information on farmland conversion. Municipalities deliver building permits, but they have no skills in agriculture and no authority to implement public policies in this field. The initiative of the mayor of Puylobier is an exception. Planners and developers do not usually work with agricultural extension officers or policymakers. This research confirms that "the traditionally sectorial and disciplinary ways in which a community's economic activities and planning responsibilities are organized" (Pothukuchi, 2009:365) inhibit the integration of agriculture and food issues in urban planning. This division of power results in a scale issue in public policy, which could be overcome by new institutional arrangements that foster more interaction between the different levels of administration (municipalities, metropolitan areas, regions, state). Horizontal inter-municipal cooperation is not enough, as shown by the inter-municipal institution around Aix-en-Provence, which is developing separated strategies on planning (master plan), food (platform for direct sale) and agriculture (land market control).

- *A health issue*: as for Aix-en-Provence and Florence, urban food strategies emerging in developed countries promote firstly fruit and vegetables and secondly dairy products, eggs and sometimes fresh meat, organic whenever possible. They are often supported by very persuasive health-related arguments (Morgan & Sonnino, 2010). However, such arguments are not applicable to the vineyards around Aix-en-Provence or the olive groves around Florence. Therefore, around these two cities, urban food strategies emerge but they do not easily integrate olive oil producers and winemakers, even those located on the urban fringe, because their products do not meet the rising urban demand for fresh healthy product. Public policies cannot promote wine and olive oil as easily as fresh fruits and vegetables because of health concerns about alcohol and fat consumption. These results corroborate research findings around Montpellier and Paris, where farmers involved in producers' markets, direct farm/producer sales or CSA schemes (*Association pour le Maintien de l'Agriculture Paysanne* in France, see Lamine, 2005) often come from far away, up to 100 km (Aubry & Chiffolleau, 2009; Vidal, 2011; Fleury & Vidal, 2010), because farmers close to the city are mainly winemakers around Montpellier and intensive grain farmers around Paris.

At the municipal level, as at the metropolitan level, not all segments of agriculture are taken into account in planning and emerging food strategies, because of scale and health issues. Nevertheless, vineyards and olive groves receive attention from local policymakers because of their multifunctional character.

4.3. Towards a multifunctional land-use approach to urban agriculture and food

Beside land-use planning, regulation of farmland conversion on the urban fringe would benefit from a multifunctional land-use approach (Lovell, 2010), connecting urban agriculture with planning and food issues. Beyond food, the multifunctionality of urban agriculture has been documented in developed and developing countries (Zasada, 2011; Mougeot, 2006). Agriculture can supply the city markets with fresh produce at a low transportation cost and. As mentioned by the Aix-en-Provence politicians, urban agriculture can also contribute to the economy, to landscape and environment maintenance (reducing the risk of fire, flood or erosion) and to the image of the city worldwide. The Puylobier case demonstrates the effectiveness of a multifunctional land-use approach that includes food production and also the cultural, ecological and social functions of urban agriculture in local planning.

In a similar way, wine and olive oil could be integrated in a sustainable urban food strategy thanks to their multifunctional character and especially their cultural value: wine and olive oil are neither fresh nor healthy products like fruit and vegetables, but they are part of the traditional Mediterranean diet, considered as a healthy diet (Trichopoulou & Vasilopoulou, 2000). Beyond food, wine and olive oil also contribute to a sense of belonging and identification (to a group or a place); they give the consumers the feeling that they are getting a special experience. In Provence and Tuscany, wine and olive oil represent local quality food (Morgan *et al.*, 2006), the "Made in Provence" or "Made in Tuscany". They foster the region's special character and attract tourists. This cultural consumption based on the link between product and place can be the starting point for sustainable development by creating new links between different economic domains (Ilbery *et al.*, 2005; Scott & Leriche, 2005). As for other *terroir* products with PDO certification, wine and olive oil production "is firmly embedded in and based upon the specific qualities and distinctive features of the region and very often integrated with other regional rural entrepreneurial activities, such as nature conservation, landscape maintenance, agritourism, care and education" (Wiskerke, 2009).

Finally, wine and olive oil can help to go beyond the 'rural urban divide': they can become adequate vehicles for reconnecting producers and consumers, and thus for creating new spatial and social linkages between different segments of the urban and peri-urban population through agri-food, agritourism, educational and recreational activities. In return, these activities may bring in

supplementary farm income, contributing to strengthening agricultural activity. Hence, wine and olive oil offer an opportunity for integration in a sustainable urban food strategy around Aix-en-Provence and Florence, building on the multiple functions of agricultural space.

In conclusion, our two case studies confirm that there is a need to shift from land-use planning to a multifunctional land-use approach including urban and community food strategies. Farmland protection policies that focus on planning prescription or land-market control are insufficient if they are not integrated into a global strategy for agriculture and food, based on the involvement of the community and the definition of a common vision. Farmland protection policies are more sustainable if they combine top-down policies with bottom-up initiatives. They could even be more effective if planners considered the multifunctional character of urban agriculture and food, especially for processed goods such as wine or olive oil.

These findings might interest not only researchers, but also practitioners in planning, urban agriculture and agri-food systems, who increasingly express the need for more holistic food planning strategies, addressing together land-use, agriculture and food issues.

In this paper, we focused on the municipal level. A next step of research might be to further study the connections between public policies on food, agriculture and land-use management at the metropolitan level. Interviews with inhabitants or focus groups with community stakeholders will also help to clarify their expectations and to prioritise the functions on which agricultural space could be taken into account in urban planning in a multifunctional land-use perspective.

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Metropolitan areas	Aix-Marseille	Florence-Prato-Pistoia
Population	1,8 million	1,5 million
Total land area (ha)	480,869 ha	484,420 ha
UAA ¹³ (% total land area)	20%	28%
Number of farms ¹⁴	4,244	18,294
Average size of farms (ha)	22.4 ha	7.4 ha
Variation of farms number (2000-2010)	-49%	-21%
Variation of UAA (2000-2010)	-13%	-15%

Table 1: Population and agricultural statistics in the metropolitan areas of Aix-Marseille and Florence-Prato-Pistoia (sources: Aix-Marseille: INSEE, 2010; Florence-Prato-Pistoia: ISTAT, 2010)

Municipality	Fiesole	Puylobier
Population	14,038	1,798
Total area (ha)	4,200	4,100
UAA in 2010 (ha)	1,482	1,203
Vines (ha)	181	957
Olive groves (ha)	799	15
Crops (ha)	446	167
Number of farms	183	54

Table 2: Population and agricultural statistics in Puylobier and Fiesole (sources: Puylobier: INSEE, 2010; Fiesole: ISTAT, 2010)

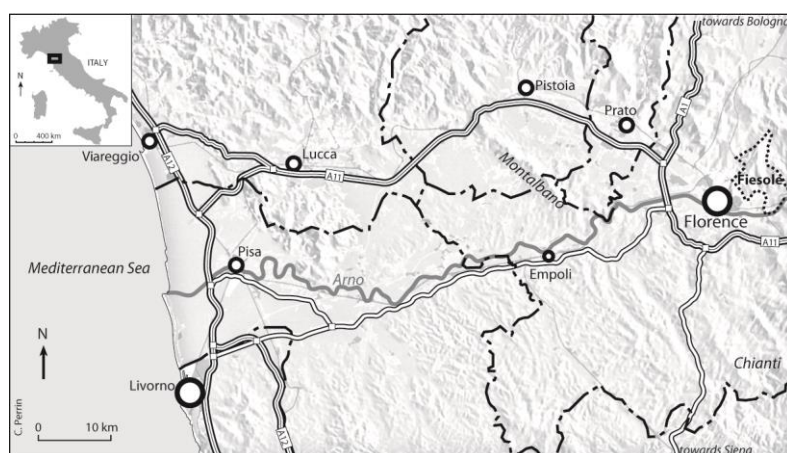


Figure 1: Location of the municipality of Fiesole in central Tuscany (Italy)

¹³ UAA: utilized agricultural area.

¹⁴ In France, the agricultural census counts only farms above one hectare of UAA. In Italy, there is no such minimum. It is therefore difficult to compare census data between France and Italy, especially those related to the number of farms.

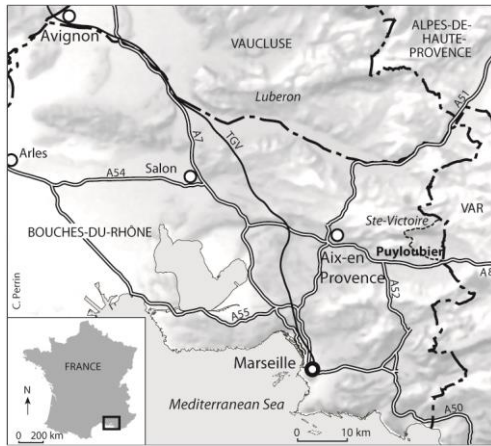


Figure 2: Location of the municipality of Puylobier in Provence (France)