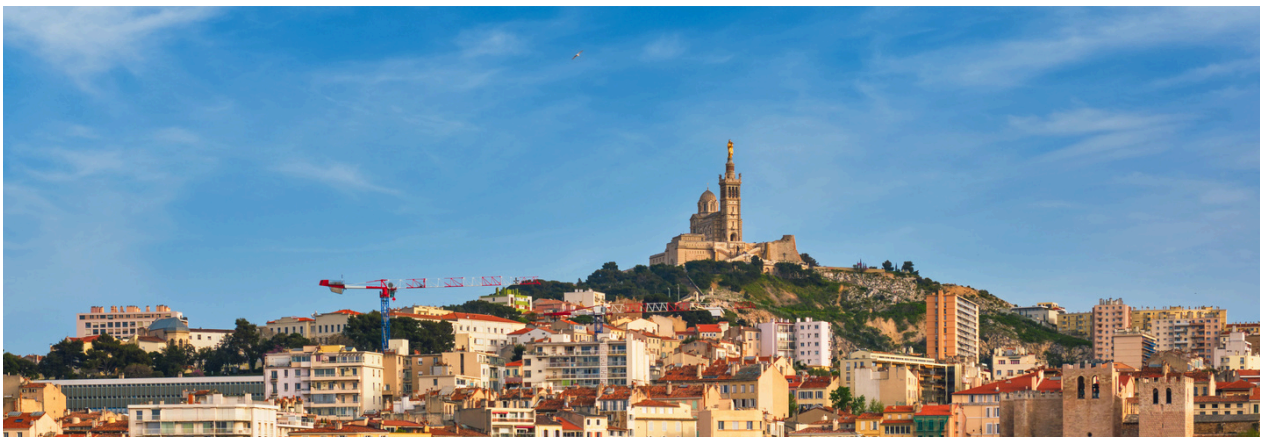
ENGINEERING PROJECT

STUDY SUMMARY

LOGISTICS OF PROFESSIONAL URBAN FARMS: COMPARISON OF MODELS IN PARIS AND MARSEILLE

FANNY PROVENT

2024



Key words: logistics, urban farms, Paris, Marseille

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AGRICULTURE URBAINE RÉSILIENTE ET AUTOSUFFISANTE AURA

BACKGROUND

Following the study carried out in 2020 on the logistics of urban farms in Paris, we wanted to explore this logistics issue in greater depth by studying another major French city to see whether the logistical organisation patterns encountered in Paris were unique or found in other areas. We chose the Marseille metropolitan areas because it is a major city with a wide range of urban farming projects and public policies to promote their development, and it has a very different, far less dense, urban structure to Paris.
This study was carried out as part of a 4th year engineering project at ISTOM, an international agri-development engineering school based in Angers. The project is called Mission Jeunes Experts (MJE) on Resilient and Self-Sufficient Urban Agriculture (AURA) and has 10 members. It involved Mahée Autunno, Camille Briel, Amy Cisse, Jeanne Djomondilo, Paul Gatineau, Thérèse Gohin, Yannis Lancien, Léane Pedron, Antoine Petrequin and Sarah Surinon-Garnier for the period from December 2020 to September 2021.

The work was supervised by Fanny Provent and Christine Aubry from the Urban Agriculture Chair, which also helped to fund part of the project.

MARSEILLE AND URBAN AGRICULTURE

In 2017, the Bouches-du Rhône Chamber of Agriculture carried out a diagnostic study for the Marseille-Provence Intercommunal Local Planning Scheme, revealing the area's high agricultural potential, including 120 hectares of arable land that could be put to good use. This was followed by the development of a metropolitan action plan with a budget of €2.1 million to support the development of 100 urban agriculture projects across the city.
Launched at the end of 2019, the plan aims to cultivate or recultivate more than 40 hectares for urban agriculture and to set up around twenty farms. It also aims to provide a strategic framework to address the many challenges faced by urban farmers (access to land, access to water, regulations, etc.) A total of 30 measures have been defined and will be implemented over several years with the support of a number of local partners (including the Cité de l'Agriculture).

OBJECTIVES

- Making an exploratory inventory of the logistical organisation of Marseille's urban farms
- Identifying the constraints encountered by these producers and the needs related to this logistical issue
- Comparing logistical organisation methods with the case study in Paris

Resource

Click here for the full version of the Metropolitan Action Plan for Urban Agriculture, including the various ambitions for the plan launched in 2019

IMPLEMENTATION

Action 1: Assessment of the area and selection of stakeholders to be interviewed

Action 2: Surveys and meetings with people running urban farms to characterise their logistical organisation

Action 3: Data analysis and comparison with models of urban farms in Paris

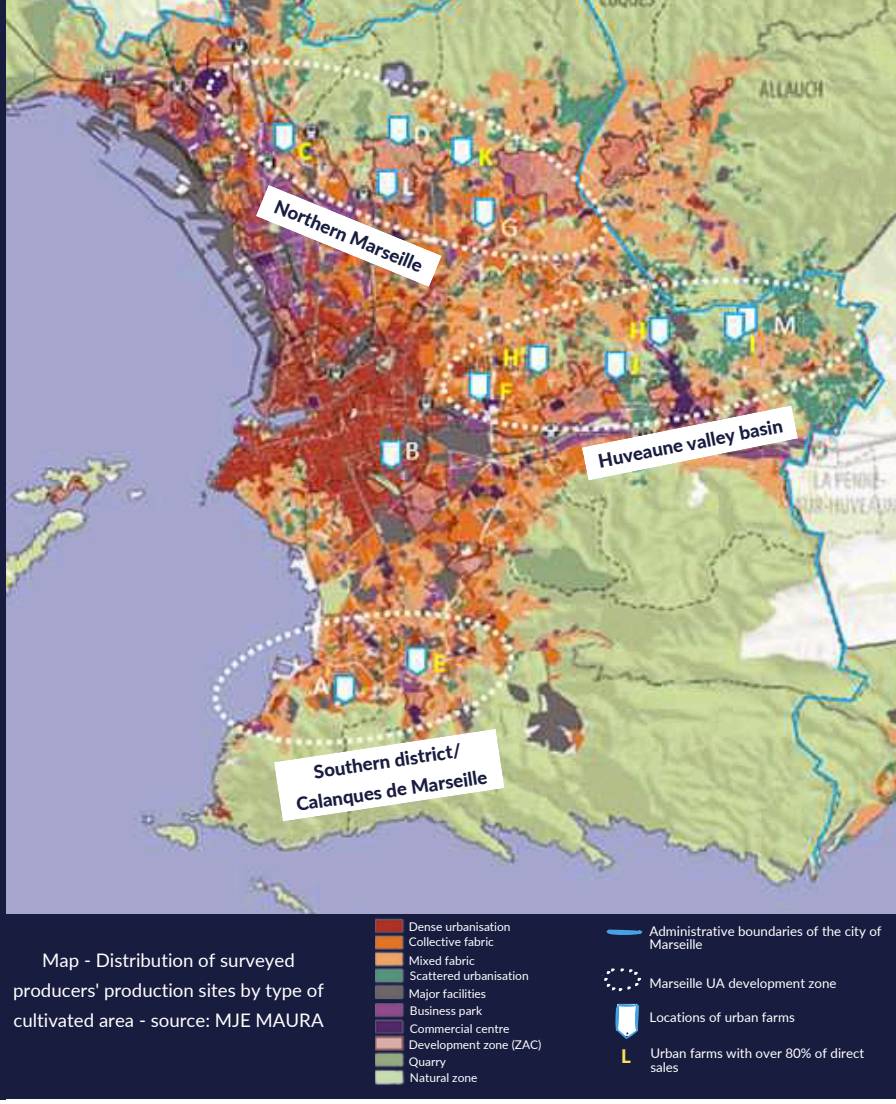
Composition of the panel studied

The map shows that the urban farms are not located in the dense urban fabric (in red), but rather in an interstitial area between urban and rural space (a so-called "mixed" fabric often made up of apartment blocks and suburban areas, nonetheless being an integral part of the city of Marseille). Only one farm is located in the city centre (B). There are also three "development basins" for urban agriculture in Marseille, in which the various farms studied are located:

1/ Huveaune valley basin
2/ Northern Marseille
3/ Southern district/Calanques de Marseille

These are three areas on the outskirts of Marseille city centre where, until the mid-20th century, agriculture was present and sometimes predominant.

The Huveaune valley, for example, was a fertile market-garden valley linking Marseille and Aubagne. The southern and northern districts of Marseille were also predominantly rural, with a number of large "bastides", fortified villages.



Map - Distribution of surveyed producers' production sites by type of cultivated area - source: MJE MAURA

13 productive urban microfarms and urban farms studied

For a total of **14** cultivated sites

84% on open grounds

7.6% indoors

7.6% underground

7 Associations

1 work placement establishment (ESAT)

5 Companies (SARL/EARL/EIRL)

FARMING WHICH IS BECOMING URBANISED OVER TIME

Between 1945 and 1975, the population of Marseille grew by around 300,000, and urban pressure was exerted on agricultural land following several decades of urban expansion. Currently established urban farmers are farming land which has been cultivated for decades and has resisted the urbanisation of Marseille.

This characteristic spatial layout, which makes the most of spaces such as urban “missing teeth", derelict wastelands, bastides and former farmland, has enabled urban agriculture in Marseille to develop over relatively large areas, with an average surface area for each farm of around 4,000 m² (compared with 956 m² in Paris, for example). Furthermore, under our classification, half of the farms studied have a cultivated area of over 2,500 m². In Marseilles, unlike other cities where land pressure is greater, a large number of empty, unsealed spaces have in the majority of cases enabled producers to set up directly on "open land" (11/13, 84% of all our producers' farms) and have thus been able to grow a diversity of crops in significant volumes. And like traditional peri-urban market gardeners, while these urban farms in Marseilles are subject to the many constraints of urbanisation (access to land, complex supply and distribution logistics, etc.), they can also benefit from direct proximity to many consumers keen to buy fresh local produce, much of it organically grown.

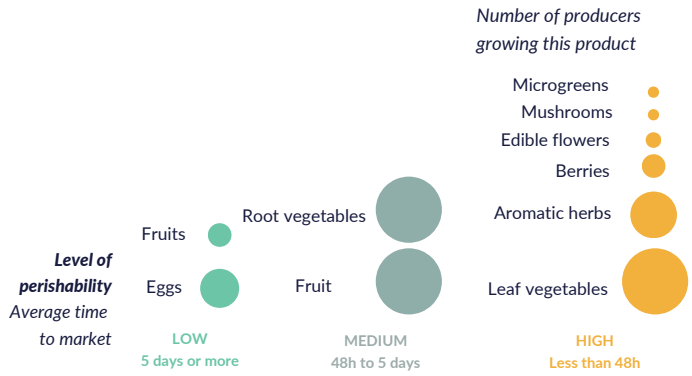
KEY RESULTS FOR MARSEILLE

DIVERSIFIED (AND ORGANIC) MARKET GARDEN PRODUCTION

The range of produce studied is similar to that grown by urban market gardeners in Paris, with the vast majority being fruit, leaf and root vegetables and herbs. Other products with high added value complete the range and are worth growing in the city (berries, edible flowers, mushrooms). Only three producers have specialised in the production of a product that offer particular benefits for production in the city (microgreens which can be grown in a small space, mushrooms in car parks, etc.)

Eleven out of thirteen of the farms on our panel of producers have the AB organic farming label. The two structures that do not have the label are either currently converting or cannot obtain the label because their production is soilless (microgreens).

Graph 1 - Number of producers by type of product by level of perishability



LOW STORAGE REQUIREMENTS THANKS TO DIRECT SALES

Most producers have made a strategic decision to have the shortest possible storage time, whatever the type of fresh produce marketed. This is in line with the rationale of a majority of producers (ten farms out of thirteen) who favour direct sales as a means of guaranteeing the freshness of the produce sold. Perishability is defined above all by the control that producers have over it, either by optimising storage (refrigeration, sufficient space) or being able to sell their stock on quickly and avoid losses. Whatever the perishability of the product, the storage period will be determined by customer demand. Farm A, for example, stores its mushrooms until its wholesale customer is ready to pick them up on their rounds. Although they wish to keep as little as possible in storage, the producers are relatively well equipped. Some are considering increasing their storage capacity to simplify their organisation throughout the week.

PRODUCERS FOCUSING PRIMARILY ON DIRECT SALES

77% of producers are involved in direct sales: on-site sales/farm gate sales are a particularly popular outlet for eight producers. Educational activities that bring potential customers directly to the production sites and the accessibility of the sites mean that on-site sales are particularly effective: the eight producers concerned sell between 70 and 100% of their production in this way.

When they are not selling direct, producers give priority to retailers or the catering trade (restaurants, bakeries/pastry shops), which are the main customers for this route. Only three specialist producers, whose offer is based on innovation and higher added value, use direct sales as their main outlet. Longer distribution channels are also used, and for some they are vital: this method of distribution is stable and allows them to extend their distribution potential over a wider area. Farmers also benefit from simplicity of organisation: there is no volume limit and transport is taken care of.

Table 1 - Distribution of channels and outlets by use by producers

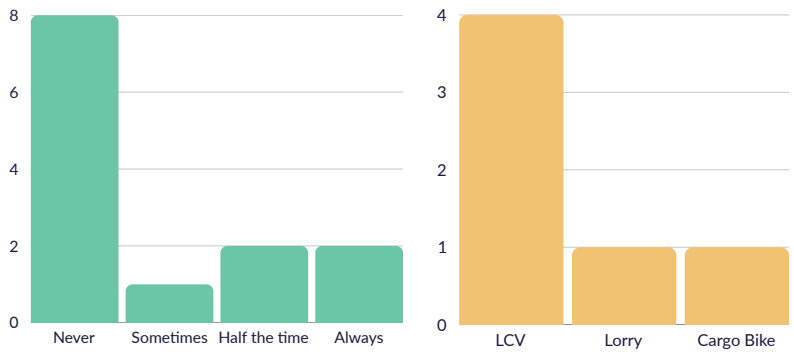
SHORT DISTRIBUTION CHANNELS	DIRECT SALES	Farm sales	8
		Markets	2
		Delivery point	2
		Basket scheme	2
		Trade fair	1
	1 INTERMEDIARY	Commercial and artisanal catering and hotels	4
		Retailer (grocery, specialist, direct producer store, etc.)	4
		Corporate catering	1
	2 INTERMEDIARIES	Wholesaler and semi-wholesaler	5
		Processor	2

KEY RESULTS FOR MARSEILLE

INFREQUENT USE OF DELIVERY SERVICES

Only three producers still make deliveries because they want to be able to talk to their customers (farms B, G and M). And when they deliver, they mainly use light commercial vehicles (LCVs), with the exception of one producer who is able to transport their products by bicycle because the products lend themselves well to this and are not very bulky. Of the remaining ten, **seven never make their own deliveries,** either because they sell most of their produce direct from the farm or because they subcontract it. In these cases it is either the end consumer or the logistics intermediary who collects the product. In some cases, these producers can provide one-off deliveries, for example if there is a partnership with a grocery shop or restaurant. **This low reliance on delivery services is largely due to the ability of producers to sell their entire production at the farm gate**

Graph 2 - Frequency with which producers handle delivery and types of transport used for those who do so



Resources

The full engineer's report from MJE MAURA is available here in french

Logistical constraints up and down the chain

To guarantee the freshness of products from harvest to consumption, the question of storage comes to the fore. All the producers have a storage area, but most (6/13) need a larger area, as well as cold rooms or a washing station. Of the others, two have recently invested to expand their storage capacity and five are satisfied with their storage capacity. Particularly during the summer months, having a cold zone ensures that the product stays fresh until it is sold, so it is essential, even if the storage time is relatively short.

Being able to ensure regular sales is the second important component in guaranteeing this initial freshness. Today's producers have fairly long-standing links with their customers, favour farm gate sales and diversify their outlets to ensure a degree of stability in sales. However, demand varies during the summer, and one of the solutions found is to use food processing. Although not all of them have processing equipment, discussions are underway to pool this task by setting up a shared processing laboratory that could be used by several producers in the same area.

Finally, several of the players would like to change their delivery methods, in particular to move towards deliveries by cargo bike, as transport in the city of Marseille is complex by lorry, not least because of the traffic jams. However, this type of transport is not always suitable and limits the volumes that can be transported.

Comparison of forms of logistical organisation in Paris and Marseille

LOGISTICS STRONGLY IMPACTED BY SITE MORPHOLOGY

While in Paris there are a number of unusual locations (rooftop, underground, indoor), 7 producers have multiple cultivation sites and the average cultivated area is 2,500 m², in Marseille the majority of producers have just one production site, in the open air, with an average area of over 2,500 m². This is largely explained by the morphology of the towns studied. **In Paris, access to land is complex and the space to be developed is mainly on rooftops or in buildings**, which explains the smaller areas cultivated and the need for some growers to set up on multiple sites to maximise their cultivation area and yields. **In Marseille**, growers are not located in the very centre (as is the case for growers in Paris) but in a **less densely populated area, giving them access to larger areas of open ground and therefore a single production site.**

These morphological differences have an impact on the logistics of these urban farms, and more specifically on the choice of commercial outlets and the transport used to make deliveries. Although the use of short distribution channels to market produce is predominant in both towns, **the majority of sites in Marseille tend to favour direct farm sales, whereas in Paris producers tend to use commercial intermediaries because of the location of their sites** (note that 30% of the sites in Paris are not accessible to the public). However, in both Paris and Marseille products are sold to restaurateurs as part of a drive to promote products to chefs. Where sales are not made on the farm the question of transport arises, and in Marseille we end up with **fairly standard forms of transport such as light commercial vehicles (LCVs) and lorries, whereas in Paris producers favour soft and sustainable forms of transport**. Ultimately, production models in Marseille are rather similar to small-scale market-garden production models, whereas in Paris the producers who have adapted their production models to the characteristics of the city are also adapting their logistics accordingly, developing new modes of transport and favouring other channels using intermediaries. Further study of this comparison and extending it to other French cities could provide a better understanding of the markers for these differences in the logistical systems of urban farms.

Table 2 - Comparison of the production and business models of the structures studied in Paris and Marseille

	Paris	Marseille
Number of sites cultivated and number of producers surveyed	75 sites cultivated by 20 producers	14 sites cultivated by 13 producers
Location of sites	1/ Indoors (60%) 2/ Rooftop (28%) 3/ Open ground (8%) 4/ Underground (4%)	1/ Open ground (84%) 2/ Indoors (7.6%) 3/ Underground (7.6%)
Average area cultivated per producer	950 m²	4 000 m²
Main distribution channels	1/ Sales to retailers 2/ Sales to restaurateurs and artisan producers 3/ Farm gate sales	1/ Farm gate sales 2/ Sales to restaurateurs and artisan producers 3/ Sales at markets and delivery points
Transport used	1/ Traditional or electric scooter 2/ On foot 3/ Electric LCVs	1/ Light commercial vehicle 2/ Lorry 3/ Other vehicles

SIMILAR ISSUES

Matching supply and demand over the summer period is a problem encountered in both Paris and Marseille. This is a period when people go on holiday, so producers have to adapt to this fluctuation in demand by changing their outlets or processing their produce into coulis or preserves that they can store and market later. **Deliveries** are an important issue because they require time and resources. In Marseille, producers favour farm sales to limit transport, or use wholesalers, committed to overcoming the current problems faced by intra-urban players. In Paris, site accessibility reduces the scope for farm sales, forcing producers to deal with the distribution of their produce. Transport still needs to be suitable to make it easier to get around town