

# Foodscapes Project

Insight into residents' foodscapes in the Greater  
Montpellier area



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Surfood  
**FOODSCAPES**



The FOODSCAPES project analyses the impacts of urban foodscapes (food shops, markets, gardens, etc.) on people's food styles (consumption, practices and representations).

## Background and objectives

Changing eating habits to achieve a healthier and more environment-friendly diet for everyone is a major current social challenge. The goal in recent years has thus been to help people make informed choices, while raising their awareness and educating them on better food options that will have a more positive impact on their health and the environment. It is now known that people's eating behaviours are not solely determined by their knowledge, intentions and sociodemographic background. They are also driven by food consumers' physical, economic and social environment. This research therefore focuses on the dynamics between people's eating habits and foodscapes, i.e. the extent of geographical and economic accessibility to all shops, markets, restaurants, gardens and sales outlets that provide food supplies for residents in a given area (neighbourhood, city, etc.).

## Expected outcomes

The project aims to provide local authorities with an available lever to take action on food—urban development. Based on the results of this research, these stakeholders will be able to understand and account for the impacts of their land policies (e.g. urban agriculture, development of community gardens) and their commercial urban planning strategies (e.g. market and shop installations) on the diets of the people living in their area.

## Research site

The research is conducted in the Greater Montpellier area, i.e. the city of Montpellier and satellite municipalities<sup>1</sup>, irrespective of their political affiliations.

## Project structure

The project involves five research strands:

- 1. Foodscapes from the residents' viewpoint**
- 2. Relationships between foodscapes and residents' supply practices**
- 3. Community gardens and their impact on different lifestyle sustainability aspects**
- 4. Impacts of the development of online food shopping**
- 5. Mont'Panier survey: impacts of foodscapes on food purchasing behaviour**

Website: [www.foodscapes.fr](http://www.foodscapes.fr)

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# 1. Foodscapes from the residents' viewpoint



**Background** Geographical and urban sociological research has highlighted that, in addition to their material features (physical objects, relief, buildings, trees, etc.), landscapes have an immaterial dimension (social and sensitive environmental elements) that should be taken into account, especially when assessing the manifold ways residents perceive, sense and experience their food environment.

## Objectives and method

Research in this strand is geared towards identifying material and sensitive foodscape features that are relevant to residents and impact their eating habits, as well as their spatial and social relationships. Given that the relationship to the foodscape is not necessarily conscious and that it is also a matter of unintentional routine practices and commonplace experience, we conducted in-depth interviews with residents, supplemented by their photos, maps and drawings, as well as walks with them through the city.

## Provisional results

- Shopping is more than just a matter of procuring supplies, it also involves soaking up the atmosphere of a place, meeting more or less familiar people, discovering what the shops have to offer, getting information and spending time in the city. Retail outlets should not be viewed merely in terms of their commodity procurement functionality. Their layout, atmosphere and customers are also key features to consider when assessing these foodscapes.
- Residents procure supplies in different ways and they have several movement rationales and relationships with public and commercial spaces. They seek—depending on their practices—comfort (via the atmosphere, social ties, rituals or intimacy of the place), efficiency (via the functionality of the place), solidarity, discovery and anonymity.
- Proximity to a shop can be regarded as an advantage from convenience, familiarity and solidarity standpoints. Yet remoteness from shops can also be viewed as an opportunity to get out of the neighbourhood and community, to discover and live in other physical and social spaces, sometimes more mixed or anonymous.

- Shopping trips are not only looked at from a practical angle (distance, duration and difficulty), they are also opportunities for people to take advantage of their familiarity with the place, where trees, intricacies and overcrowding can impact their perception of an atmosphere that may contrast with a vision of a “smoother, cooler and more fluid” urban environment where efficient functionality prevails.
- The distance to food shops and their practical functionality (ease of movement, storage, information, cleanliness, etc.) are therefore amongst the many elements in the perception of foodscapes. Foodscapes must therefore be understood in a multifunctional way that better mainstreams the social, cultural and pleasure dimensions, while taking the full array of spatial relationships into account, from the least formal (familiarity with places and people) to the most public (e.g. ecological commitment).

## What recommendations?

Urban planning policies have impacts on the tangible aspects of foodscapes. Comfort, living together or living in one's neighbourhood are influenced by this materiality of places and their sensitive features, which offer opportunities for residents. How the foodscape is viewed is therefore not solely a matter of easily finding food of the sought-after quality at an affordable price. Sourcing food is a part of living in and feeling at one with the city, which can take different combined forms—inhabitants frequent different places at different times while seeking different types of products and developing different spatial relationships. Urban planning policies should thus contribute to building foodscapes in a multifunctional way by better incorporating the social, cultural and pleasure dimensions and by not—as is sometimes the case—obliterating the familiarity and comfort benchmarks for the sake of efficiency and fluidity.

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## 2. Relationships between foodscapes and residents' supply practices

**Background** Research studies on foodscapes have highlighted the presence of so-called food deserts in reference to areas where some residents cannot readily obtain healthy food at affordable prices. In the United States, these food deserts are deemed to be a public planning issue as researchers have mapped vast areas where people are disadvantaged and shops are too remote or expensive for residents, or where supplies of fresh fruit, vegetables, meat and dairy products are lacking. FOODSCAPES is the first French study to look into this issue by analysing the retail food outlet coverage within the area and the impact of this coverage on consumers' spatial procurement practices.



### Objectives and method

This geographical research strand aims to map the foodscape diversity in Greater Montpellier, characterize and model residents' spatial supply practices and identify cities' food supply levers. This research combines spatial analysis, interview and field survey approaches.

### Provisional results

- A geographic information system (GIS) was designed for the purpose of mapping food outlets in Greater Montpellier (including restaurants). Shops listed in the SIRENE and OpenStreetMap databases were checked via field surveys to obtain a reliable updated database. This initiative notably revealed that shop closures are seldom mentioned in the SIRENE database, which can lead to overestimation of the number of shops in a neighbourhood, and also that the quality of these databases, especially OpenStreetMap, varies between neighbourhoods and their according to the types of retail outlets considered, which can lead to misinterpretations when comparing neighbourhoods.
- This database gave rise to a typology of Greater Montpellier neighbourhoods, which helped distinguish different urban and periurban foodscapes according to the morphology of the buildings, food supply (density, food shop and restaurant diversity) and neighbourhood sociodemographic features.
- Most neighbourhoods in the city of Montpellier host shops selling fruit and vegetables. The map below shows that shops are generally less than 300 m away from households. Diverse neighbourhoods have few shops—they may be affluent neighbourhoods or not, suburban neighbourhoods, collective housing or business districts. Yet there are very large suburban neighbourhoods with no food outlets in the periurban municipalities. Well-off households prevail in these neighbourhoods. Access to food supplies may be problematic for neighbourhood residents who do not have access to a car, e.g. elderly people who are no longer able to drive.
- Spatial consumer supply practices are currently being assessed through an analysis of consumers' monthly food trips based on interviews with households to gain insight into how and why they purchase food. The results are expected by late 2020 and should help identify areas where consumers procure their food supplies, according to their neighbourhood and sociodemographic profile.
- A study of specific neighbourhoods in Montpellier and satellite communities (Malbosc, Saint Martin, Courreau, Sussargues and Saint Drézéry) (historical analysis and survey of food shops) revealed various levers via which public stakeholders could change foodscapes: direct levers focused particularly on interventions in markets and commercial outlets, and indirect levers, e.g. through transport policies, storefront renovations or the development of public spaces.

### What recommendations?

- Based on the GIS designed within the FOODSCAPES project, local authorities could look into creating an observatory of food shops to provide open access to regularly updated data. This type of observatory exists in other French metropolitan areas.
- Surveys conducted in four neighbourhoods have shown that meetings between food system actors (shopkeepers, caterers), consumers and public stakeholders could be useful for jointly defining the targeted foodscape and priority actions. These thematic meetings on food could consist of



neighbourhood meetings or street walkabouts to discuss issues. They could be particularly beneficial in neighbourhoods without food shops and in those where urban development operations are planned. They would help ensure that the planned developments take into account residents' expectations regarding changes in food shops and their accessibility (range, layout of surrounding public areas), transport and parking policies.

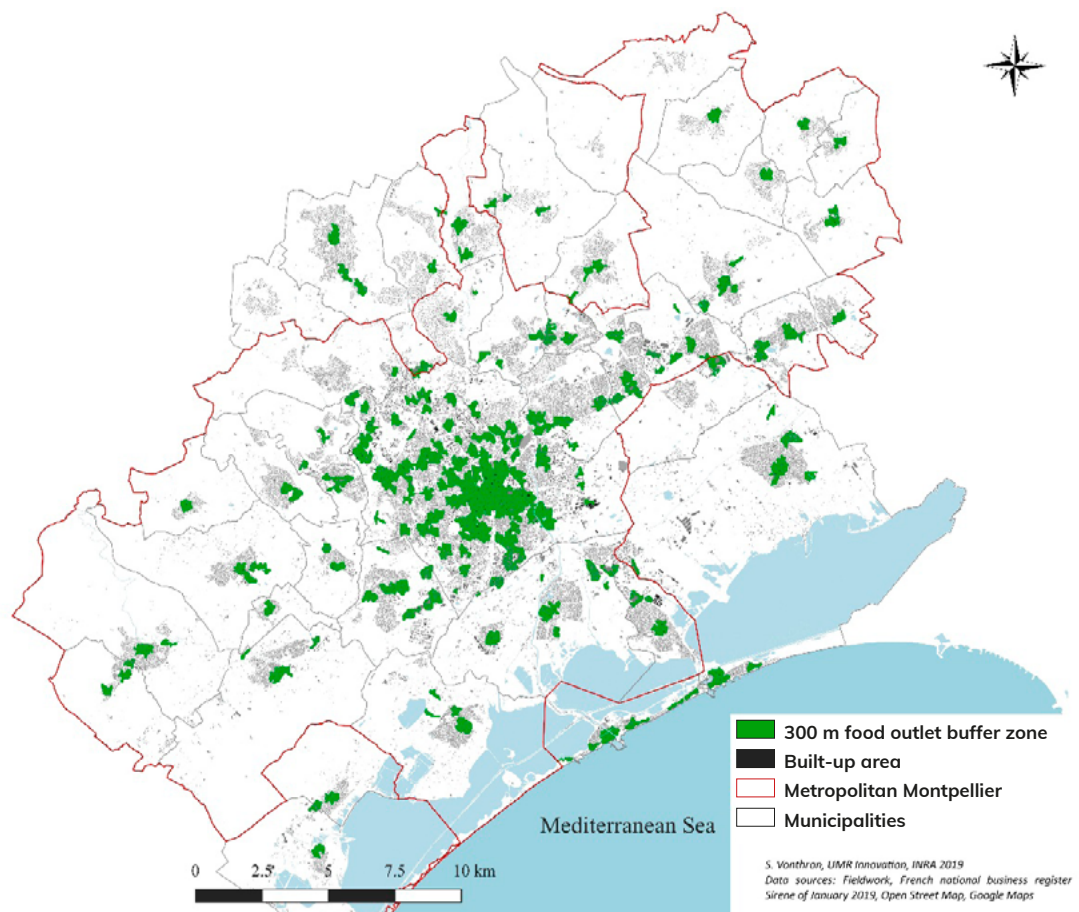
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## Urban zones where fruit and vegetables may be bought in food outlets (excluding markets) within 300 m from households

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# 3. Community gardens and their impact on different lifestyle sustainability aspects



**Background** Community gardens are booming in cities in industrialized countries. The findings of several studies suggest that they have many health benefits for community gardeners, including promoting fruit and vegetable consumption, physical activity, social bonding and mental wellbeing. Studies conducted so far, however, have been based on declarations while also being cross-sectional, i.e. focused on studying gardeners at a given time, eventually comparing them with simultaneously monitored control gardeners. Yet the design of these cross-sectional studies precludes the assessment of causal links, so they have not revealed causal relationships between access to a community garden and the adoption of sustainable healthy lifestyles. JArDinS is the first study aimed at assessing changes in gardeners triggered by their first year of involvement in a community garden according to three sustainability dimensions.

## Objectives and method

Novice gardeners in a community garden were recruited on a voluntary basis in Montpellier in 2018 (n=75). Participants were interviewed when they first became involved in the community garden (T0) and then 1 year later (T1). Meanwhile, participants in the Mont'Panier study (see Strand 5) who did not garden but had a community gardener-like profile (matched by age, gender, household structure and income and the typology of the residential neighbourhood) were recruited for a control group. Changes induced by the first year of gardening were studied according to the three following sustainability aspects: 1) health/social features: estimated by the nutritional quality of food supplies, participant's level of physical activity, their body mass index, and their views on their mental wellbeing and social isolation; 2) environmental features: estimated by the environmental impact of food supplies and associated food movements, food waste awareness and attachment to nature; 3) economic features: reflected by household food expenditures, purchases from major food distribution chains and the contribution of harvests to household food supplies. To measure these different data, the participants: 1) collected their food receipts and listed all food supplies that entered their household over one month

(purchases, donations and harvests) in a logbook; 2) wore an accelerometer (ActiGraph) around their waist for 9 days to measure their physical activity; and 3) filled out several online questionnaires (wellbeing, isolation, food waste awareness, attachment to nature). Qualitative interviews were also conducted at T1 with 15 gardeners to gain insight into any lifestyle changes that may have occurred during the first year.

## Results

- Data collected for 66 gardeners and 66 non-gardener controls were compared.
- The average age of novice gardeners participating for the first time in a community garden in 2018 was 44 years old. An overwhelming majority of them were women (76%), childless (72%) and with a high level of education (76% with a university degree).
- Community gardens were not alongside buildings. The gardeners walked or cycled to them (73%, average travel time: 8.6 min) or used cars or public transport (27%, average travel time: 21.2 min).
- At T0, the two groups (gardeners and non-gardeners) were not completely identical—gardeners had a slightly lower educational level and BMI and members of their households ate out less frequently than those in non-gardener's households.
- After accounting for these differences at T0 in our models, the results did not show a statistically significant change related to participation in the community garden regarding any of the measured variables.
- At T1, a year after joining the gardens, the community garden harvest only represented 5% of the total fruit and vegetable supply to the gardeners' households on average (20 g/day).
- Qualitative interviews with 15 gardeners helped gain insight into the lack of change in the measured parameters. Some gardeners spontaneously mentioned that their awareness regarding food and the environment was already high before they became involved in the garden. Others reported difficulties encountered, but mainly their lack of time and scant

knowledge about gardening, which was discouraging for some of them. Other elements mentioned by some gardeners included: the physical burden of gardening, health problems and conflicts amongst the gardeners. Sixteen gardeners left the garden between T0 and T1, yet the conclusions remained unchanged in a second analysis when data for these latter gardeners were excluded (no significant noticeable changes in any of the measured variables).

## What recommendations?

We did not observe any changes related to the first year of gardening with respect to the different variables associated with the three sustainability aspects. However, the interpretation of our results warrants caution. The hypothesis that community garden participation may have impacted parameters other than those measured, such as the sense of peace, the pleasure of cultivation or belonging to the neighbourhood, cannot be excluded. Moreover, behaviour-changing mechanisms, particularly with regard to diet and physical activity, are relatively complex and the 1-year follow-up may not have been sufficient to detect these changes—yet

a longer follow-up would likely have led to an excessive loss of participants. Further longitudinal studies are needed to determine whether community gardens could effectively enhance urban residents' health. Tackling the barriers mentioned by the gardeners is a major challenge to facilitate newcomer integration and long-term participation, while further enhancing the lifestyle benefits of community gardens.

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## The Petit-Bard/Pergola community garden.



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# 4. Impacts of the development of online food shopping



**Background** Online food buying is often assumed to be a 'dematerialized' shopping option, but this is far from being the case. This practice engenders new forms of commercial relations, yet it is very much part of the foodscape and the products traded are (obviously) tangible food commodities. We opted to assess food e-commerce from the users' standpoint by contextualizing it in their foodscape experience. This involves gaining insight into how these online practices relate to other more traditional forms of supply. This research is being conducted in a setting of steady growth in online commodity trade—a trend that has skyrocketed in the wake of the recent health crisis and lockdowns.

## Objectives and method

This strand is focused on studying online purchasing conditions (frequency, types of ordering and delivery) while also assessing the extent to which online food shopping replaces or is combined with more conventional forms of food supply. The research is based on in-depth interviews with residents who practice online food shopping.

## Provisional results

- Regarding online shopping, a distinction must be made between selection and ordering practices (ordering from a supplier or choosing from a virtual range) and order retrieval practices (drive-through grocery pickup [called *le drive* in France], delivery in residential or workplace areas, or at home).
- Online shopping does not replace but instead complements and dovetails with other food supply options.
- Alongside purchases in supermarkets and hypermarkets, drive-throughs or meal deliveries, this also concerned purchases from specialist retailers (meat, wine, preserves) or direct-to-consumer purchases from farmers.
- In this respect, online shopping should be considered as a tool for consumer groups and for alternative food shops, particularly for consumption behaviours that are part of territorial food systems.
- People's online food shopping motives are varied and not just geared towards efficiency and time and travel savings. Online shopping also provides access to niche products, particularly from specialized suppliers.
- Online shopping does not necessarily mean increased consumption individualization, but it is the focus of new forms of community activity (online shopping groups, online shopping to buy from alternative solidarity-oriented food networks).

## What recommendations?

Various grocery delivery options are available for online shopping: drive-through pickup, delivery to specific locations not linked to supermarkets that are close to home, to the workplace or other locations, as well as home delivery. These delivery options are developing in communities that seem highly varied, and the quantitative survey (Strand 5) will help determine whether or not it concerns neighbourhoods that are less well served by shops. This trend should now be taken into account in urban development policies and it would be essential to strengthen the role of the tools connected to the *Montpellier Méditerranée Métropole* agroecological and food policy service.

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# 5. Impacts of foodscapes on food purchasing behaviour

**Background** In nutrition research, the growing interest in environmental factors, particularly the geographical food supply distribution pattern, is a consequence of the historical increase in obesity rates in recent decades (Expertise collective, 2014). Although research studies abound, fairly mixed results have been reported on correlations between the foodscape features, eating behaviours and body weight (Sacks et al., 2019). This could be partly explained by the fact that often only one foodscape aspect was taken into account in the published studies while the focus was primarily on eating behaviour in terms of consumption or specific food purchases, rather than on the overall diet quality (Sacks et al., 2019). Moreover, these studies did not consider the impact of more sustainable types of food outlets on food behaviour, e.g. markets, organic food shops and short supply chains, despite consumers' increased reliance on these food supply outlets (Jilcott, Pitts et al., 2017). Finally, the environmental impact of food behaviour has not yet been studied.



## Objectives and method

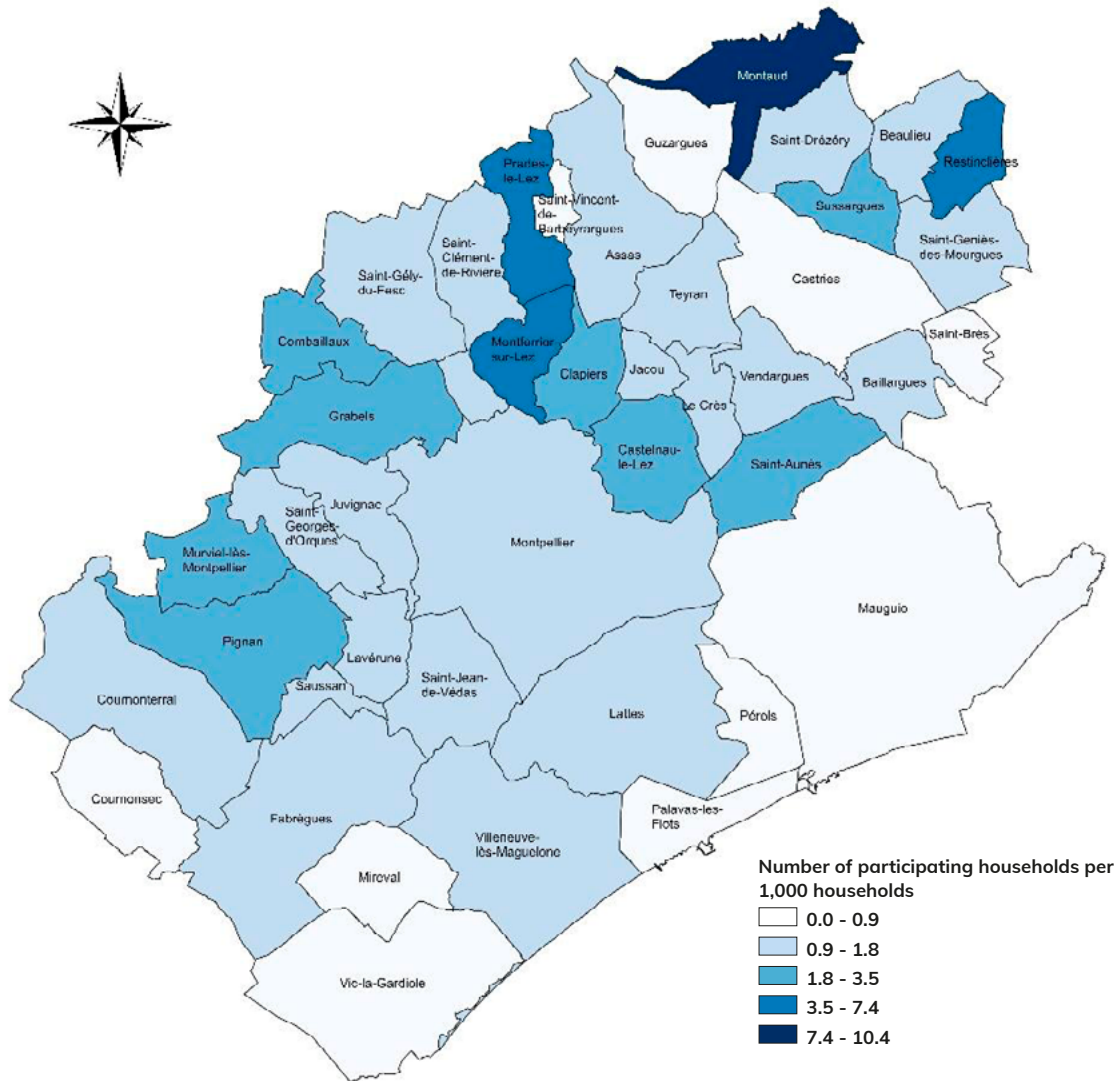
This strand assesses the relationship between foodscapes and the sustainability of household food purchasing behaviour. This research is based on the Mont'Panier questionnaire survey of a sample of Greater Montpellier residents conducted between May 2018 and January 2020. Purchases were recorded by collecting all food purchase receipts over a 1-month period.



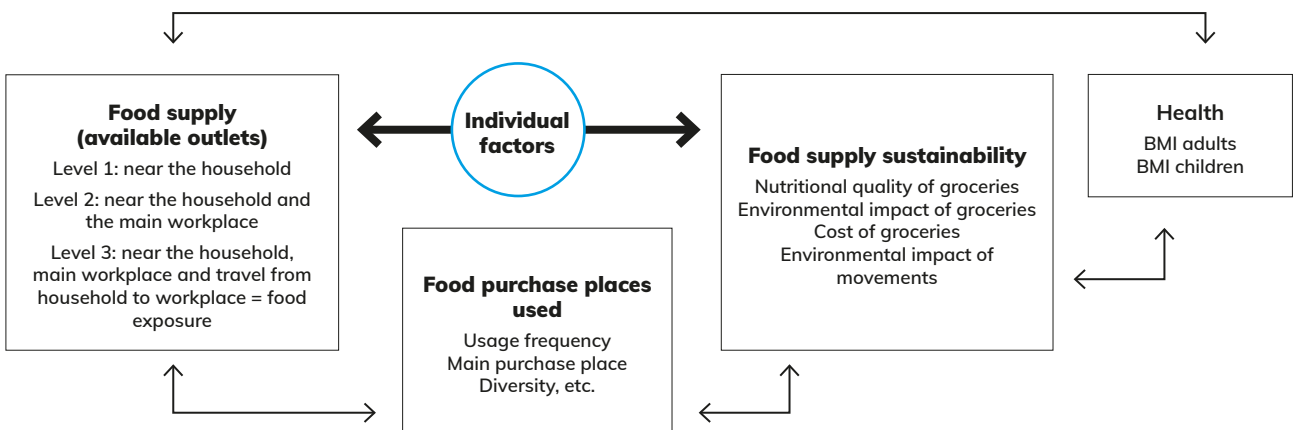
## Provisional results

- Around 740 households filled in the online questionnaire on the different types of food supply locations accessible and used (reported practices), including 426 households that provided information on their actual food supplies over a 1-month period (details on the foods purchased, expenses, purchase location, route and means of transport). The characteristics of the 426 sample households (age distribution, household structure and income quartiles) were similar to those of the reference population.
- The preliminary analyses suggested that a higher density of fast food outlets available within 15 min from a household was associated with a higher risk of overweight (including obesity), regardless of the participant's socioeconomic level (income, education). Conversely, an increased density of shops selling fruit and vegetables within 500 m of a household tended to be associated with a lower overweight risk.
- In the coming months we will be assessing—in a highly original way—the nutritional, economic and environmental sustainability of actual household food supplies. The economic cost will be calculated on the basis of a month's food expenditures. The Healthy Purchase Index (HPI) scoring system developed by our team will be applied to the household purchase data to assess the nutritional quality. The environmental impact of purchases will then be estimated by applying a score developed from an ADEME database—this score includes several environmental impact indicators (greenhouse gas emissions, acidification, eutrophication, etc.) estimated for the 2,800 foods most consumed by the French population. In addition, based on the travel data declared for each food supply excursion, the distances travelled will be calculated and converted to determine the carbon footprint.
- The main expected scientific result is the validation of a conceptual framework highlighting relationships between foodscape indicators, sustainability food supply dimensions and individual features. We will specifically assess foodscape features having the greatest impact on the food supply sustainability. For instance, one hypothesis tested will concern the question “is the density of food supply locations around the place of residence associated

## Map of the survey participant distribution



## Diagrams of the studied relationships



with higher nutritional quality, lower cost and lower environmental impact of food purchases?”. Moreover, the individual factors (socioeconomic, viewpoints, etc.) involved in these relationships will be assessed to determine those that consolidate and those that mitigate the foodscape impacts on the food supply.

## What recommendations?

Potential recommendations emanating from this research could concern barriers to and levers for the implementation of appropriate commercial and urban planning initiatives aimed at improving the sustainability of urban food behaviours. These analyses could generate insight into new forms of food distribution organization (associations supporting small-scale agriculture, home delivery, delivery at nearby designated points, etc.) which have a positive impact on food behaviour sustainability.

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