Good morning for all of you and thank you for giving us this opportunity to exchange with you
Urban agriculture is a very old phenomenon, including in Europe, where cultivating or raising cattle inside the cities or at their very close neighborhood, was common at least until the IIWW. Inside or near Paris, local market gardeners were very well-known at the beginning of the XXth century because of their multiple technological innovations. These old innovations are today considered as a valuable inspiration source by, among others, the new organic market gardeners in north America (Coleman, JM Fortier). I just remember you that the last cow left Paris in 1971!

By Urban agriculture, I mean, agriculture inside the city or close to the cities but in close relationship with the city, first by supplying food but not only, supplying also a range of services, environmental ones, cultural or educational ones etc to the city. We will speak of Multifunctionality. Nowadays, UA has has new forms worldwide including on the buildings themselves.

A huge diversification of these forms is in course in Europe and the industrialized world, when its role in the developing world is increasing in supplying fresh food, instead of growing urban extension.
The research team I manage since 2012 is called simply Urban agricultures (please consider the plural !).

Considering the multifunctionality of Urban agriculture, its aim is to analyse, quantify, qualify these multiple functions and services That the diversity of Urban agricultural forms brings to the city, Food, landscapes amenities, environmental function so as contributing to the biodiversity to the contention of riks such as flood, the growing interest of cities for thermic regulation of Urban heat islets.

and in reciprocity, the services that the city may bring to « its » urban agriculture (customers, but also land to set up but also organic wastes that could be tranformed into agricultural fertilizerd and so on). Nowadays some cities have set up organisations to manage the role of UA in the city and notably to help it to set up on urban vacant lands.

Our research team nowadays includes 18 members 12 researchers and professors and 6 PhD students and postdoctorate. Its main characteristic is its interdiciplinairaty because to study the mulitple functions of UA we need technical sciences such as bioclimatology or agonoy but also socila scientifst such as socila geographers, sociologists etc.
Urban Allotment Gardens

| International recognized form of UA (non-prof.) |

They are deeply Multifunctional

Huge increase at least in Europe and North America

3 shared gardens in 2003 in Paris, 124 in 2013
Nearly 1000 ha of UAG in Parisian Region.. 1/3 of the professional MG area

Analyse, quantify, qualify their functions and services for the cities

What for?

For Knowledge and research purposes

For establishing knowledge-based and scientifically based arguments.. to lobbying in favor of UAG insertion in Urban Planning .. And Politics

And what about Urban Gardens Urban « collective » Gardens such as family gardens, shared gardens, or other forms of non-private gardens, are internationally considered as a form of UA

they thus have and we will show some of them multiple functions.. And they are growing rapidly at least in Europe and North America

so it is natural for us to include them as a research object for us (read)
Some research results and questions about UAG Functions

12 Research teams in 7 French cities
(Lille, Paris, Nantes, Toulouse, Marseille, Lyon, Nancy)

A French Research Program 2013-2016

Four Research Topics
Governance of UAG in the cities
Technical management, food production and consumption, benefits and risks
Ecosystemic services and soil pollution risks
Management of soil pollution through phytoremediation

And some other researches
Doctoral thesis Jeanne Pourias (2014)

Some data about recent researches made about UAG
First of all: the Jassur program which mix 12 research teams in 7 cities
Four research tasks
One of the most interesting results is that gardeners themselves consider their gardening activity as multifunctional. It was already demonstrated by Wegmuller and Duchemin for example in Canada in 2010 and Jeanne measured this multifunctionality with in-depth inquiries about their perception among 39 gardeners in Montreal and Paris.

The results show common appreciations and some differences between types of gardens. Communitarian and family gardens put in first the food function (for themselves and their family generally, including if all of them offer some of their produce to other gardeners or friends). For shared gardens, the social function (creation of social links among gardeners) is more important than food production, but you can see than social function also comes in high priority for family gardens. Leisure and contact with nature as well as educational functions are very frequently cited by the gardeners.

This corresponds more or less to the urban planners' expectations about gardens. Jassurs inquiries with them would show (work in progress) that for example, urban planners valorize a lot the «nature» functions of gardens, perhaps more than gardeners themselves, and social (we could say social pacification in some cases).
The food supply function of UAG has been only recently addressed, on three of its components: the quantitative one, we will show some results here, the symbolic and cultural one (relationship with native vegetables for example for migrants), and qualitative and nutritional dimensions.

On these last points, research has been important in USA where it was demonstrated that UAG really increase the nutritional status of gardeners and their families. In Europe and specifically in France, there are some researches in course about these points which for the moment seem to reach similar results: a real nutritional interest, direct if the garden is productive enough for the family and indirect by creating more interest for fruits and vegetables consumption in the gardeners community.

To assess the quantitative aspects, Jeanne developed an original participative methodology, using an « harvest book » where gardeners anotated themselves their crop harvests and their way of consumption.
These are the results of the “harvest book” for Paris in 2012 and 2013. As you can see, the total production of a plot is very variable.

1 - The estimated contribution of the garden to the diet (situation on the gradient) is on the whole very consistent with the quantities harvested. Gardeners that identify themselves in situations 1 or 2 grew between 6.9 kg/year to 16.6 kg/year. Gardeners that chose situation 3 grew between 17.6 kg/year to 57.9 kg/year. Gardeners that chose situation 4 or 5 grew between 78.5 kg/year and 383.7 kg/year.

2- The amount of food produced in one plot is only partially related to the size of the plot which varies between 2 to 200 square meters in Paris, and which was 18 m² for all Montreal plots.
Social Functions

<table>
<thead>
<tr>
<th>(re) creation of urban social links</th>
<th>Links between gardeners and with other urban dwellers?</th>
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</thead>
<tbody>
<tr>
<td>Education/ inter-generational links</td>
<td>Pedagogic gardens in schools More children in family gardens?</td>
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<tr>
<td>An increasing creation of UAG in countries with dramatic social and economical crisis</td>
<td></td>
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</tbody>
</table>

What about shared gardens/family gardens?

Claimed by Shared Gardens
But controversial (Lea Mestdagh, 2015)

Lisboa Portugal
A new phenomena in Greece (till 2008)

Social functions

UAG play a lot of social functions, first of all creating or recreating social links between gardeners and perhaps with other urban dwellers. All the forms of UAG play this type of role but it is specifically claimed by «shared gardens» as the main function they can have in the city, far from food supply one.

This claim is nevertheless controversial, recent studies showing at least in Paris, that shared gardens often create a new form of gentrification, an «entre soi» dedicated only to the same profile of urban dwellers (white, ecologist, aware of associative life) and excluding others.
Environmental Functions

Biodiversity

« cultivated »

More than 100m²
J Pourias, AC Daniel

20 to 100 m²

5 to 20 m²
and « not cultivated »

« ECOLOGICAL » management

No or very Few chemical inputs
No or less agressive soil work
Some management « to respect nature »
Other environmental functions (organic waste consumption, thermic regulation for the city) have still to be really assessed

A very interesting Object for Research

Some results already considered

Biodiversity and « green corridors »

UAG considered in cities « food plans »

Edible Edinburgh: A Sustainable Food City Plan 2014-2020

“Encouraging more people to grow their own and eat seasonal, local and organically grown produce » 1435 family parcels, 2700 families are waiting.."
Thank you for your attention

Credits photos: AC Daniel, Jeanne Pouriau, N Bel, B Gned, C Aubry