



**HAL**  
open science

## **FOODSHED : Is there a specific spatial signature in short supply chain (Case Beef)? around Avignon (South of France)**

Mouléry Michel, Esther Sanz Sanz, Claude Napoleone

### ► To cite this version:

Mouléry Michel, Esther Sanz Sanz, Claude Napoleone. FOODSHED : Is there a specific spatial signature in short supply chain (Case Beef)? around Avignon (South of France). Royal Geographical Society (with IBG) Annual International Conference 2022, Aug 2022, Newcastle, United Kingdom. hal-03765347

**HAL Id: hal-03765347**

**<https://hal.inrae.fr/hal-03765347>**

Submitted on 31 Aug 2022

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



**Royal  
Geographical  
Society**



Tuesday, 30 August, 2022, Henry Daysh Building - Session : 138 ; **Analyzing and mapping proximities of recovery for food sensitive planning**, **Présentation number 359**

# ***FOODSHED : Is there a specific spatial signature in short supply chain (Case Beef)? around Avignon (South of France)***

*\*Mouléry Michel (Geographer in Spatial Analysis)*

**INRAE ECODEVELOPPEMENT (DPT ACT)**: French National Research Institute for Agriculture, Food and the Environment.

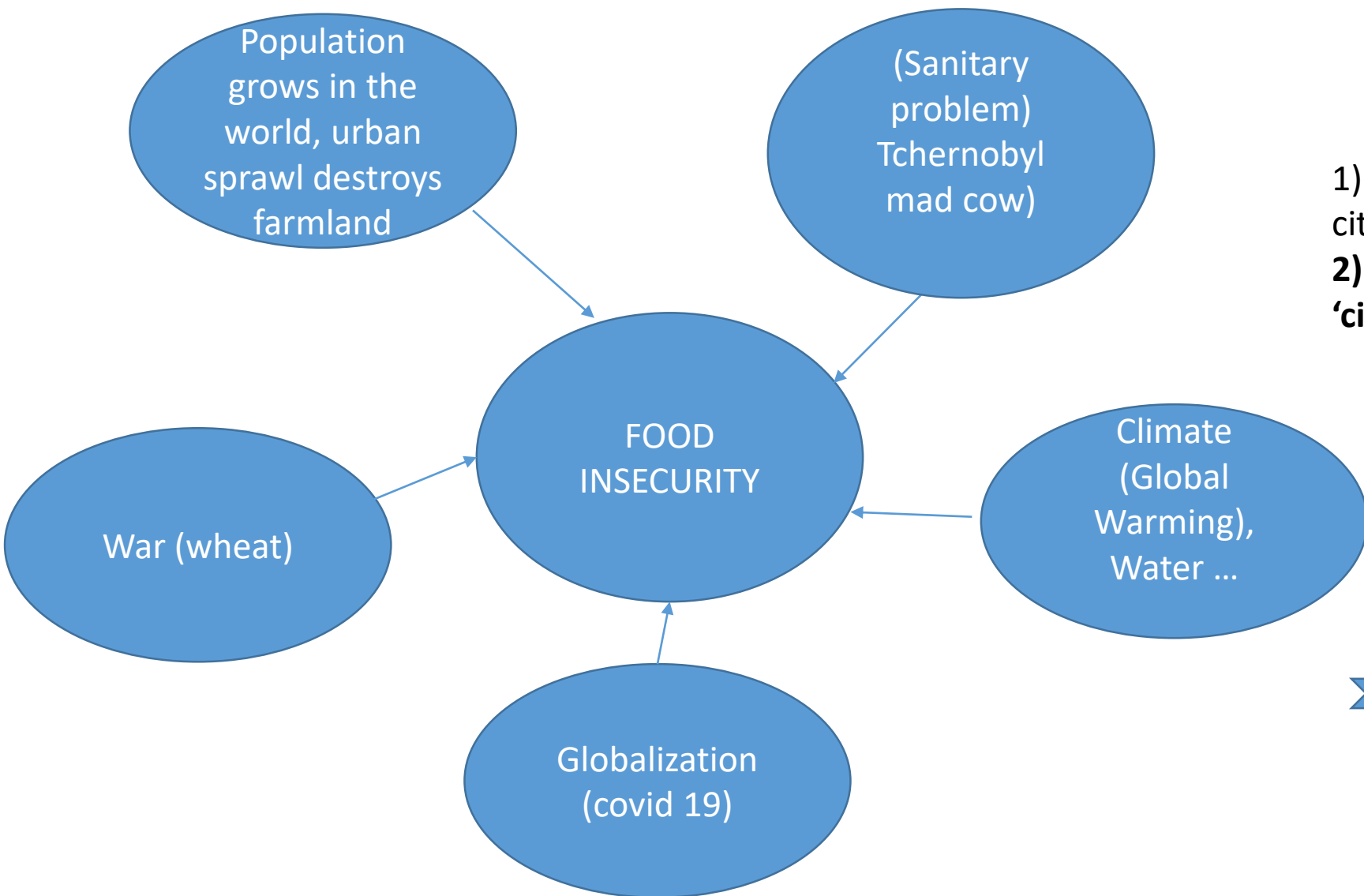
**CNRS UMR ESPACE AVIGNON 7300** : French National Center for Scientific Research

Project: [H2020 FoodSHIFT « Food System Hubs Innovation towards Fast Transition by 2030 »](#)

## PLAN

- **Context**
- **Research question**
- **Area Zone of the study**
- **Data & Méthodology**
- **Results**
- **Conclusion**

# CONTEXT



- 1) These problems question public policies, citizens and scientists
- 2) How to (re) connect 'city or region' with its agriculture**



Discover new methodology  
In spatial analysis to answer  
these questions

# Research Question

EXAMPLE OF A CASE STUDY	THE GOAL
<b>Collective catering in Avignon &gt; Problem of lack of beef (in schools )</b>	CANTEEN : Feed the schools (Quality and origin of the food) -> local approach

## **(H1) FOODSHED : Is there a specific spatial signature in short supply chain (case of Beef) ?**

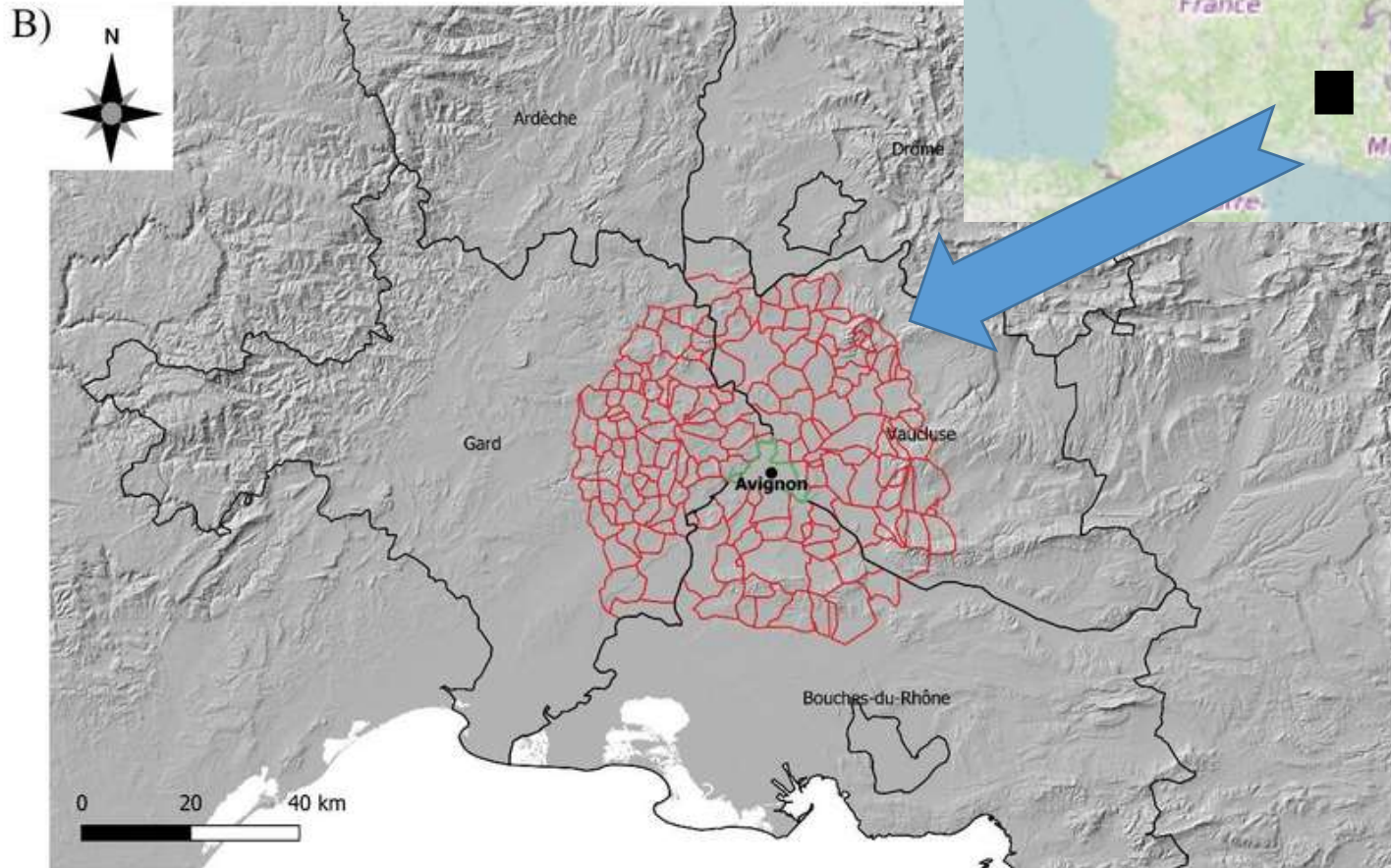
Foodshed? = spaces close to each other (but not necessarily contiguous) linked by the production, circulation and consumption of a certain product. (definition Kinunen, Nature Food, 2020)

- Our objectif**
- 1) Detect the potential food basins in our region (Avignon to **100 KM**)**
  - 2) To see if there are a SPATIAL specific SIGNATURE IN SSC ? (hypothesis)**
  - 3) To produce knowledge (map and statistics) and understand ...**

# Area Zone of the study (Avignon)



- Population 92 000 inhabitants
- Between 2 rivers Rhone and Durance ( water !!)
- Summers are short, very hot, dry , winters are cold, windy
- Agriculture -> fruits and vegetables, **(the biophysical characteristics are not adapted for the pastoral surfaces)**
- Close two departments Ardèche and Drôme  
(Advantages -> Pastoral surfaces)





# HOW TO CREATE A MAP TO DETECT THE Beef food basins in SSC ( Short supply chain) -> Which data sources ?

STEP 1 : DATA 1  
LAND PARCEL  
INFORMATION  
SYSTEM  
CAP PRIMES

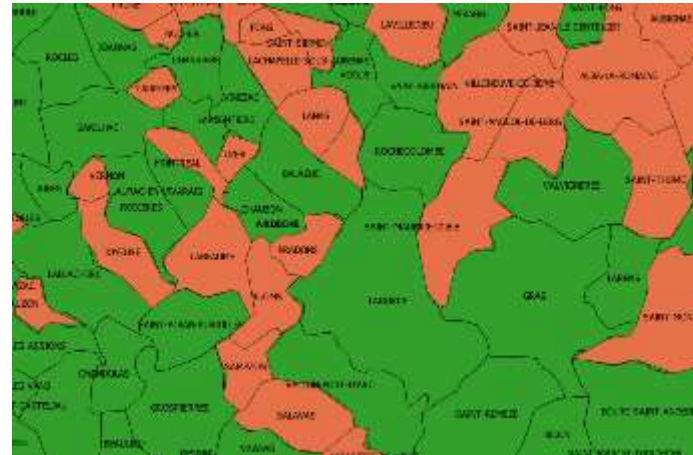


Select of permanent meadows , temporary meadows , pastoral area, wood



Lack of information of the SSC (beef)

STEP 2 : DATA 2  
*Census agriculture 2010 (Agreste) -> scale of the city*

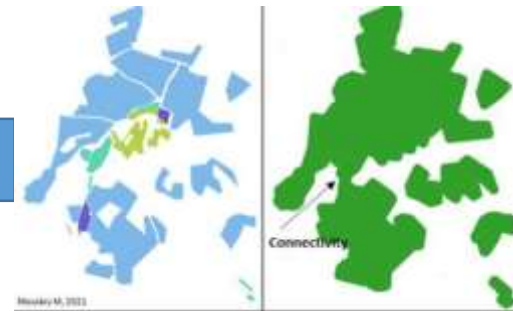


green commune with cattle farm in SSC and color orange not

STEP 3 :  
**OVERLOAD**  
*DATA 1 (scale of the parcel) ON DATA 2 ( scale of the city)*

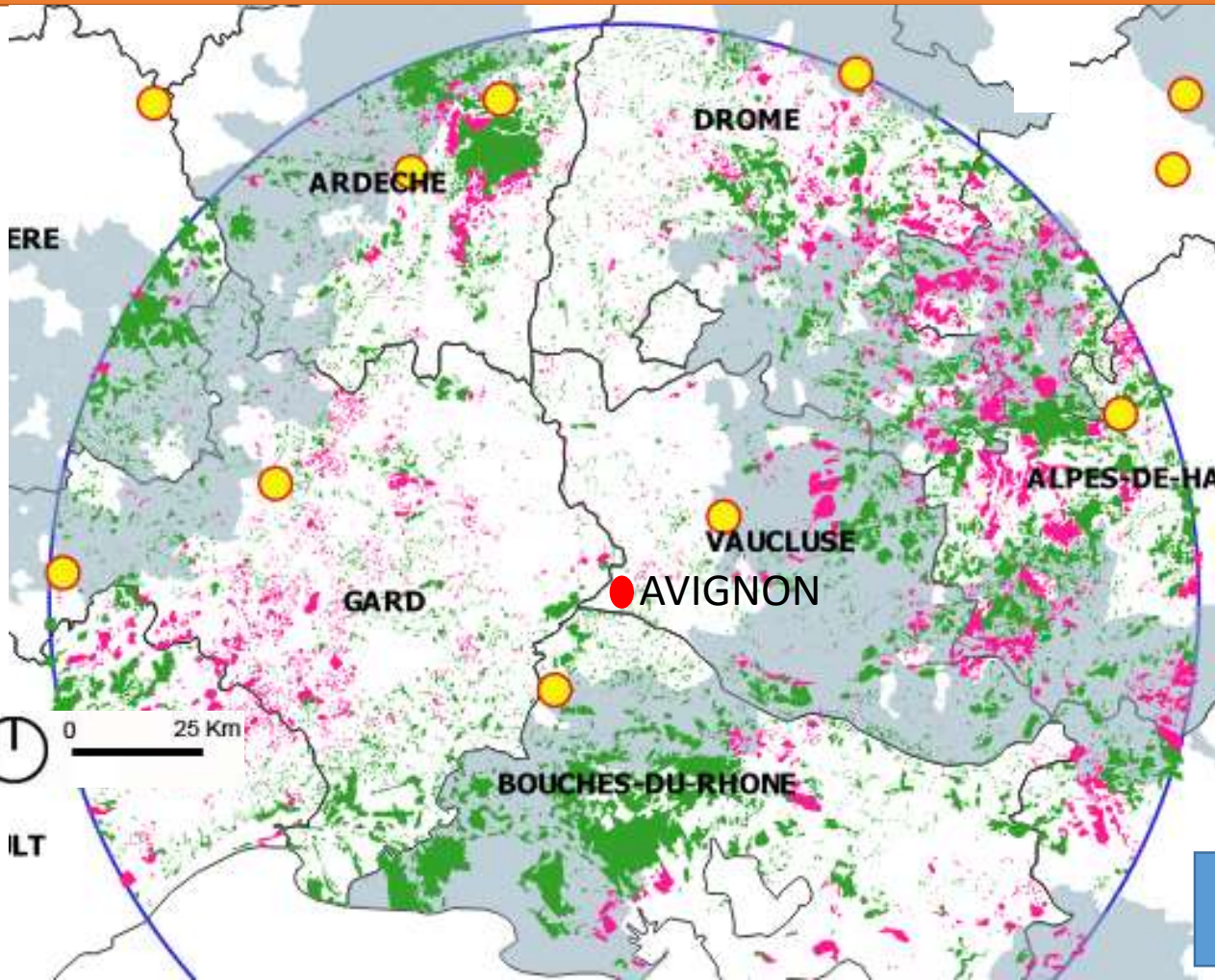


Parcels aggregation



MAP && statistics calculation of variables to define the spatial signature in SSC

# Results : Characterization of the form and location of farms contributing to local supply chain (SSC)



- Beef local consumption
- Beef exported
- Slaughterhouses
- Regional natural parks

Spatial signature in short supply chain (beef production areas)

**First variable**  
Dominance

2\* More areas in SSC  
Located close to each other  
Neighborhood effect (socials links , best pratics)

**Second variable**  
Distance from Slaughterhouse

Beef feeding areas selling are closer  
Cost Distance and butcher

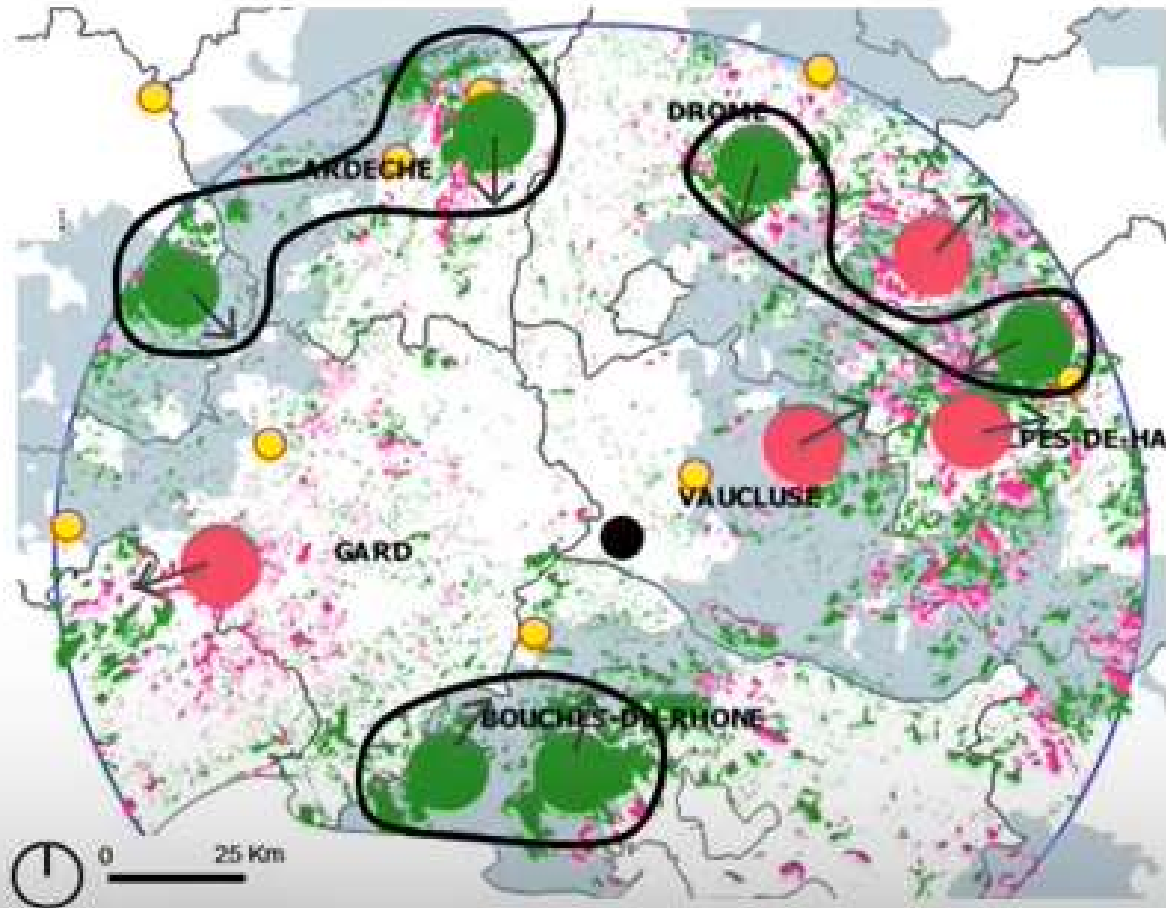
**Third Variable**  
Location with Natural park

Proportion Areas SSC are higher  
Action parks (local food , quality labels)  
Publics policies

**Fourth Variable**  
Rugosity

Increased rugosity (Brinkley,Forman) is associated with large populations and large historic peri-urban farms involved in direct marketing.





### 3. Archipel *foodshed*

Mouléry, Sanz Sanz et al.  
(2022)

- WHY IT'S IMPORTANT !!! -> These approaches are of great interest to public policy ! due to the lack of method and tools to work on short supply chains -> have a map -> statistics -> general view or point of reference
- **Evaluate the food capacity in a region**
- And to have the possibility to increase local production with actors in the region
- Our methodology -> other research project -> with other type of agriculture
- To go to the field to better understand, meet the farmers (qualitative studies)

## Self-sufficiency assessment: Defining the foodshed spatial signature of short beef supply chains

Michel Moulery <sup>1, \*</sup>, Esther Sanz Sanz <sup>1</sup>, Marta M. Debolini <sup>1</sup>, Claude Napoleone <sup>1</sup>, Didier Josselin <sup>2</sup>, Luc Mabire <sup>2</sup>, José Luis Vicente-Vicente <sup>3</sup>

Détails

\* *Auteur correspondant*

**1** ECODEVELOPPEMENT - Unité de recherche d'Écodéveloppement

**2** ESPACE - Études des Structures, des Processus d'Adaptation et des Changements de l'Espace

**3** ZALF - Institute of Landscape Biogeochemistry, Leibniz Centre for Agricultural Landscape Research

Kinnunen, P., Guillaume, J.H.A., Taka, M. *et al.* Local food crop production can fulfil demand for less than one-third of the population. *Nat Food* **1**, 229–237 (2020). <https://doi.org/10.1038/s43016-020-0060-7>

Brinkley, C. (2017). *Fringe Benefits: Adding Rugosity to the Urban Interface in Theory and Practice*. *Journal of Planning Literature*, 0885412217726772.

Contact me (us)  
:Michel.moulery@inrae.fr



.. <https://www.grain.org/article/entries/93-seized-the-2008-landgrab-for-food-and-financial-security>

THANK YOU FOR YOUR ATTENTION and the team (INRAE , CNRS) *C.Napoléone, E.Sanz-Sanz, D.Josselin, V. Angéon etc .. and Matilda Strand !!!!*

<https://www.inrae.fr/>

<https://www.inrae.fr/departements/act>

<https://www6.paca.inrae.fr/ecodeveloppement>

<https://www.umrespace.org/>