

# **PUBLIC WEBINAR**

#### January 21st - 12:00pm CET

What role does urban and peri-urban agriculture play in city food systems in the context of COVID and climate change?

This project has received funding from the European Union's Horizon 2020 research and Innovation programme under grant agreement number 862716.

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# URBAN AND PERI-URBAN AGRICULTURE

### Ben Reynolds, Sustain (FoodSHIFT2030 Network Partner)



FOODSHIFT 2030 Presentation

#### 12:00 Welcome and Introduction

Christian Bugge Henriksen – UCPH, FoodSHIFT2030 Coordinator

- **12:05 Urban and Peri-Urban Agriculture** Chair: Ben Reynolds – Sustain, FoodSHIFT2030 Network Partner
- 12:10 Projects from across FoodSHIFT2030
   Avignon Elsa Chiffard-Carricaburu & Hugues Fortuna, Ville d'Avignon
   Barcelona Sally Bourdon, FabLab, IAAC & Rasmus Bjerngaard, Nextfood
- 12:40 The Singapore Experience

Guest speaker Bjorn Low, Executive Director at Edible Garden City

12:55 Panel discussion with questions from audience

#### 13:20 Conclusion



FOODS



**Recording is ON** 

Live Translation available from French to English and vice versa

Twitter @FoodSHIFT2030 #FoodSHIFT2030

Use the Q&A section to direct questions to speakers

Use the chat for technical issues and general





# PROJECTS FROM ACROSS FOODSHIFT

Avignon Elsa Chiffard-Carricaburu & Hugues Fortuna, Ville d'Avignon



FOODSHIFT 2030 Presentation



# Accelerator Lab'

Setting up a short supply chain to provide local, fresh and quality meat for the municipal canteens





This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement number 862716. Avignon is a city located in Provence, South-Eastern of France, with 92,000 inhabitants



OSTENDE (BE), BARCELONE (ES), BARI (IT), ATHENES (GR), BRASOV (RO), BERLIN (DE), COPENHAGUE (DN), WROCLAW (PL) Who are the other LABs participating to FoodSHIFT project? FOODS

#### / FoodSHIFT 2030 /

#### **Our objective**

To offer high-quality food to all users of our municipal catering service

Explore how public procurement can be a driver to build a more regional, sustainable and healthy food system.

Our 3 main goals
1. Increase partnerships with local "green" suppliers



2. Improve quality meals by a more plant based diet based on local and organic products

3. Reduce & fight against food waste and develop recycling of bio-waste



#### Our municipal service of catering

Local elections in 2015 :

school restoration previously contracted out during 16 years with a service provider had be taken over in **direct management**...

It became a municipal serviceMain goal : offering more qualitative food as wished by the new Mayor.

The main mission of the municipal central kitchen is school catering :

650 to 680 000 meals served every year 4 000 to 5 000 meals served each day in 37 canteens children aged from 3 to 10 : nursery and elementary schools



Additionnaly, services are provided for : the elderly - 50 000 meals per year reception and leisure centres - 45 000 meals per year







#### Actions for sustainable development

For the past 4 years, we have been trying to:

→Boost the improvement of quality of food supplies by favouring local and/or organic production

20 % local, 38 % organic

*Meat is one of the key product on which we are willing to improve the quality reducing quantities as « less but better »* 

→Initiate a local and dynamic network with our suppliers : food innovators, social actors, structures of apprenticeship, etc.

→Carry out actions to raise awareness and fight against daily food wastage, which has already led to a important reduction, compared to the national average What kind of project would we lead?

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### Birth of our "local quality meat project"

#### One of our strategic tool is the AGRILOCAL platform – What is it exactly?

*It's an online platform that connect local producers to public stakeholders, in order to make easier the contacts between actors of public procurement and the regional farmers The rules of tendering process are precisely respected* 

The fulles of tendering process are precisely respected

#### 2. In the frame of our local suppliers sourcing : we contacted various meat producers (beef) to know if they could be interested by a partnership :

*A group of producers, located on mountains An individual one, located on a plain – organic meat* 

3. We met a local structure of apprenticeship for butchers *It appeared there would be too much legal and technical difficulties to set up a partnership. i.e. their sanitary approval was missing = a "sine qua non" condition for the project !* 



We worked to find a solution !



#### The first conclusion bring us to identify

- Shared willingness to work together from the 3 stakeholders:
- (1) meat producers (2) structure of apprenticeship(3) our school service of restauration
- Necessary adaptations to go through various technical, organisational and legal difficulties
  - We organized a second round of meetings and shared reflections about :
  - $\rightarrow$  Service of cutting and processing fresh beef
    - $\rightarrow$  Respect of our meals calendar
  - → Identifying meat pieces used and cooked for children consumption
  - $\rightarrow$  Other pieces for other guests with complementary needs
- → Sanitary approval regarding meat conservation and sale to a third party i.e. outside the apprenticeship structure Etc...









Once each actor has done his specific work

#### We have to continue together in order to

→ Make fit all the defined elements : quantities and timing

*Establish formal agreements between* (1) *Public structures* : our school restauration service and the structure of apprenticeship (2) *Private ones* (farmers)

→ Define a test period
 key moment to test our joint way of working
 – likely on the beginning of next spring







#### Work is still in progress... For a complex but exciting project ! Showing that :

- Being dynamic and establishing contacts with local stakeholders can be very positive for a public actor
  - Yariety of stakeholders set the conditions to a creative and experimental project that is a way to renew its practices for an open-minded public actor
- Difficulties are overcome by shared willingness and trust :
  - ✓ ANALYSING closely both needs of consumption and production
    - ✓ MAKING MATCH production and transformation to their respective specific needs

Foodship I loved this meal prepared by a collective energy... !



# Thanks for your attention and involvement in improving food quality for all! FOODSHIFT

Follow the project

foodshift2030.eu

in FoodSHIFT2030

@FoodSHIFT2030

foodshift2030@ku.dk

@FoodSHIFT2030



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# PROJECTS FROM ACROSS FOODSHIFT

Barcelona Sally Bourdon, FabLab, IAAC Rasmus Bjerngaard, Nextfood

FOODSHIFT 2030 Presentation



# FOOD TECH

Fab Lab Barcelona & Nextfood approaches



With Sally Bourdon & Rasmus Bjerngaard

# Learn about:





Barcelona's context

Fab Lab Approach x Food: 3 Cases

- → Peri-urban & urban with ROMI
- → Citizen growers: GROW Observatory
- → Professional Urban Farmers: Nextfood

# **Barcelona** 2021 World Capital of Sustainable Food



Barcelona Capital Mundial de l'Alimentació Sostenible 2021 Here, now, for the planet

### Valles Plain

Bai

Llobregat

Collserola

5 km

# Peri-urban farming in Barcelona



	Baix Llobregat agricultural park
	Collserola natural park
	Cropland in 2010
	Cropland in 1957
	Municipalities

https://www.tandfonline.com/doi/full/10.1080/01426397.2017.133



# FAB LAB BCN

# We are an innovation centre re-thinking the way we live, work and play in cities.





# This is what we do

- Open
- Collaborative
- Informative
- Empower



# This is how we do it



- Co-create bottom-up
   strategies
- Empower communities
- Prototype
- Iterate
- Repeat



# FOODSHIFT

# Our approach x Food

### 3 cases:

• ROMI (Robotics for Microfarms): peri-urban farming at Valldaura, Collserola

### GROW Observatory: Oitizen tech for urban

Citizen tech for urban agriculture

• Nextfood:

Industry tech for urban farmers







We empower microfarmers with open robotic tools









Helping farmers increase production & improve working conditions with open tools







# Linking urban & peri-urban ecosystems



# We empower citizen urban agriculture communities with open monitoring tools



# Growing food together

Collective intelligence through data sharing





**Growing numbers** 

6502

20500

165

**Connected sensors** 

Participants

Countries

Industry tech for urban farmers case:

# NEXTFOOD

NE λT FOODSHIFT FOODSHIFT FOODSHIFT





#### Benefits for:

#### Climate/biosphere

#### Producer

#### Consumer

- Easy and accessible
- Predictable supply
- Always in season
- Branding
- Longer shelf life
- No food contamination
- Control taste and nutrition

- 95% water saving
- 75% less fertilisers
- No chemical pesticides
- No pollution
- No soil depletion
- Transparent, traceable
- Local. Minimal transport
- Minimal food waste
- City attune production
- High productivity
- Short production cycle
- o Fresh
- Healthy and nutritious
- Delicious taste and aroma

# Fresh, tasty, nutritious and sustainable

Nextfood crops are minute-fresh, high in nutrition (healthier), very flavourful, pesticidefree (like organic) and traceable.

Our production is great for climate and biodiversity because of high resource and space efficiency, local production, and almost no waste.



Grow food locally year-round. Inside restaurants, hotels, catering companies, super-markets, or in a local indoor farm in your neighbourhood.

Nextfood in-store mini-farms and large-scale vertical farms make it easy to grow deliciously fresh and exceptionally flavourful, nutritious and sustainable crops anywhere and anytime.

Farms are constantly monitored over the internet, so the plants are always at their best. Harvest is predictable and the usual risks of agriculture are a thing of the past.



Aeroponics is the most efficient and precise way of irrigating crops, saving up to 98% water. The roots hang in mid-air and are fed by a nutrient rich mist.

# How it works

Nextfood farms are automatic. Each farm is carefully remote-adjusted by Nextfood's plant experts and machine intelligence for optimal yield, taste, nutrition etc. through internet connected sensors and actuators.

 $V \equiv Y \downarrow$ 

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We use the same natural inputs as plants require in nature and no pesticides.

Using the latest technologies in LED light, aeroponics, machine learning etc. we ensure maximum efficiency and precision, as well as minimum resource consumption.

All consumables are bio-degradable.

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# Explore more:

ROMI: romi-project.eu

GROW Observatory: growobservatory.org

Nextfood: nextfood.co Fab Lab Barcelona: fablabbcn.org

Fab Labs (in general): fablabs.io

Fab City Global Initiative: fab.city/



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#### FOUNDED





IG / TW / FB: @fablabbcn

# FOOD

# **THE SINGAPORE EXPERIENCE**

### Singapore Bjorn Low, Edible Garden City



#### RESTORATIVE AGRARIAN DISTRICTS

## Bjorn LOW

Agrarian Urbanism-

A whole of society effort to food production

Andrés Duany

BioDynamic Agriculture-The farm as a living organism Rudolf Stenier Productiv

Aesthetic Foodscape design-Productive landscapes Joshua Zeunert

Permaculture-Sustainable system designs Bill Mollison, David Holgrem



### SINGAPORE AGRICULTURE

#### HISTORY - OVERVIEW

719.2 square kilometres Population 5.6 million

(per capita in 2015)

- Eggs 323 pieces
- Leafy vegetables 16kg
- Chicken 32kg
- Fish 16kg
- Pork 18kg
- Rice 51kg





### **SELF-SUFFICIENCY BY** MID **OF LAST CENTURY**

By 1959 Primary Production Department (PPD)

By 1965

20,000 farms 25% of the land (14,500 ha) Population of 1.6 million

By 1975 Production of: Poultry (80%) Eggs (100%) Pork (104%) We were exporting!

### INDUSTRIALISATION AND DECLINE OF PRODUCTION



Resettlement of By 1980 farms to the North and North West



By 2013 Production: 700 ha (1% of our land)

- Leafy vegetable (8%)
- Eggs (26%)
- Fish (8%)



## Imports

#### 90% of our food 170 countries

### 2015

- 13% of leafy greens
- 24% eggs
- 10% of fish

UNITED	BRAZIL	INDIA	CHINA	THAILAND	VIETNAM
Beef Chicken Milk Pork Rice Veggies	Beef Chicken Pork	Milk Sugar Rice Veggies	Fish Fuits Veggies Cooking Oil	Fish Fruits Milk Sugar Rice Veggies	Fish Fruits Rice Sugar Veggies
MALAYSIA	INDONESIA		AUSTRA	LIA NE	WZELAND
Chicken Cooking Oil Duck Eggs Fish Fruits Sugar Veggies	Cooking Oil Fish Milk Pork Veggies		Beef Cooking Oil Fuits Milk Mutton Pork Sugar Veggies Fieh		Beef Fuits Milk Mutton

https://pals.ava.gov.sg/ava-ar-2015-2016.pdf



Environmental Ethics: "Environmental degradation due to increased food demands

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### Temasek, Bayer form new company to sell seeds to vertical farms

WED, AUG 12, 2020 - 4:39 PM





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Bloomberg

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Deals

# Temasek Chips in \$3.7 Billion to Help Bayer Fund Monsanto Deal

By <u>Klaus Wille</u>

April 17, 2018, 11:31 AM GMT+8 Updated on April 17, 2018, 4:34 PM GMT+8

### "our portrayed food future"

DCM

Station of the



A NEED TO SAVE AND RETAIN INDIGENOUS FOOD KNOWLEDGE



### Political Ecology- Singapore



- Urban Redevelopment Authority Singapore Landscape replacement Area (LRA)
- National Parks Board Green roof policy
- Urban Farming now considered as a LRA
- Singapore Food Agency targets for 30 by 30
- Cross agency task force to tackle food security



\*Kampung Admiralty- WOHA Architects





Design Approach

We understand what chefs and home cooks alike are looking for. We adopt a collaborative approach when building your garden, selecting plants based on your needs and preferences. We approach each garden design from the angles of:

SUSTAINABILITY ENVIRONMENTAL IMPACT COMMUNITY ENGAGEMENT











#### Sustainability

We use recycled materials such as reclaimed wood in our garden raised beds where possible.



Community Engagement

We engage with clients to activate their gardens with relevant and unique workshops and activities.













#### "Designing a Restorative Agrarian District"



A shared community food space for the community to explore and hack the food system @ Rowell Road Little India. 2015

## FARMING UNDER THE/ VIADUCT/

29 APRIL 2017

1430 to 1600 1630 to 1800 WEST COAST VIADUCT

Near West Coast Park, under the viaduct intersecting Clementi Road

Urban planning policy shift in the activation of underutilised state land for urban farming @ Viaduct 2017

#### ENVIRONMENTAL ETHICS

Close loop farming system using the black soldier flies, our solution to address the circularity of the urban economy@ Citizen Farm 2016



Social Ecology "Creating social change using nature and green spaces"







• A combined use of Quantitative and Qualitative measures

**Physical Movement** 

Through activity trackers

(Fitbit or HBP Trackers)

#### Social Synergy

- Social wellbeing assessment
  - Economic wellbeing
     assessment

#### **Psychological Wellbeing**

Psych emotional wellbeing
 assessment

**Nutrition & Knowledge** 

**Blood biomarkers** 

Self reported dietary habits

Economic wellbeing assessment

#### A range of improvements in....

- cognitive function (↑ CSCL12, BDNF, & PDGF)
- immune response
- stress levels (↓ cortisol)
- fine & gross motor skills
- muscle mass
- social connections
- group cohesiveness
- self-esteem & personal satisfaction





- Mental Engagement
  - Psych emotional wellbeing assessment
  - Blood biomarkers

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#### Follow the project





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