



EU CAP Network workshop
'Enhancing food security under changing
weather patterns: farm adaptation'

14 - 15 March 2023, Bologna | Italy



Funded by
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Workshop: 'Enhancing food security under changing weather patterns:
farm adaptation' | 14-15 March 2023 | Bologna, Italy



Climate change – challenges and solutions for annual crops

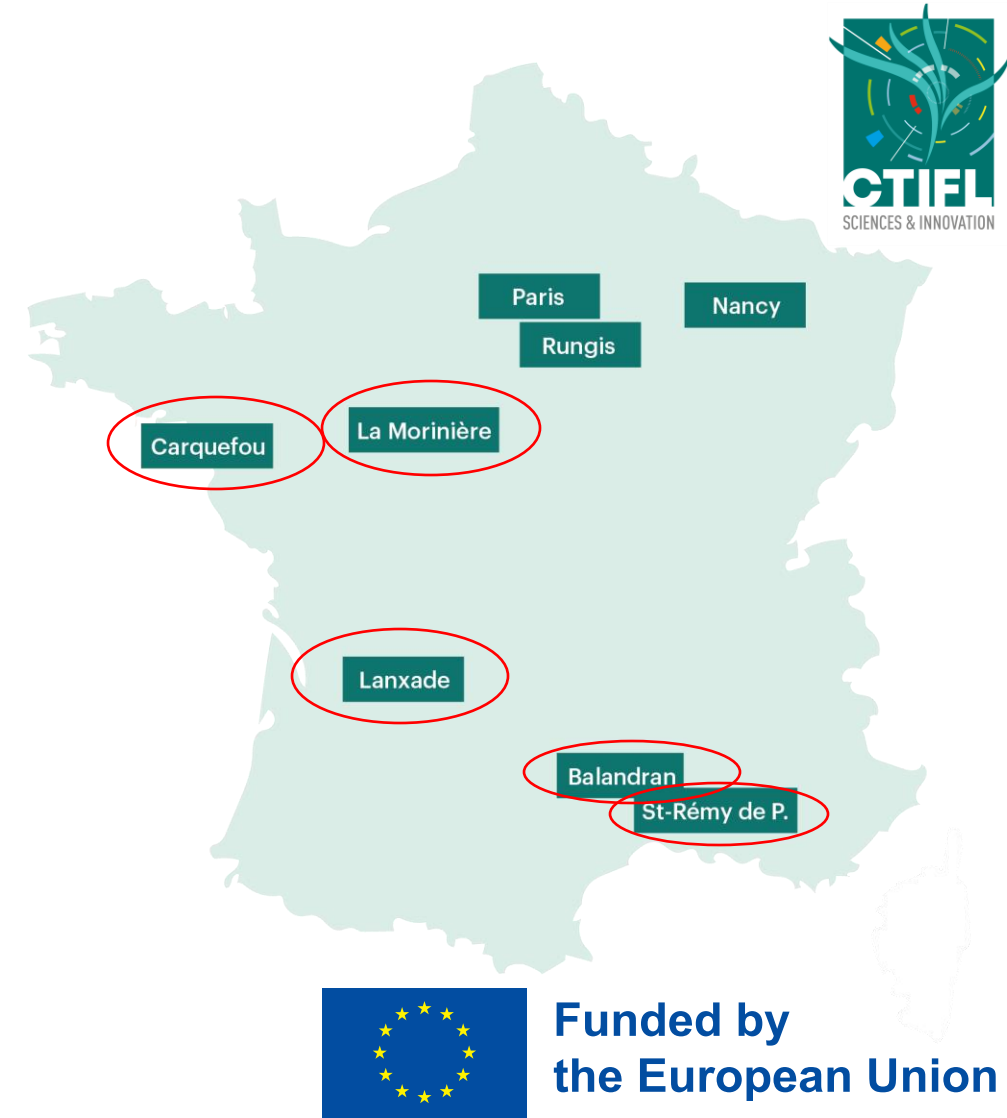
Dea Hvillum

French Interprofessional
Technical Centre for
Fruits and Vegetables (CTIFL)



CTIFL

- CTIFL is working only on unprocessed fruit and vegetables
- Half of our annual budget comes from the professionals in the F&V sector
- 5 regional centres
- 15 partner research stations
- 73 HA orchards / 34 fruit species
- 20 HA vegetable areas / 77 vegetable species
- 4 HA green house / tunnels



The French context (annual crops)

- Greenhouses: **anticipation** and **solutions already created** (cover, cooling system, water recycling...)
- Annual crops have a **larger genetic pool** and **phenotypic variability** is wider (depending on species)
- More seasonal **flexibility** for growers
- **Other topics more focus** until recently
- However, climate change **becoming a major challenge** related to **water** and new/invasive **pests** and **irregular weather** patterns

Solutions to anticipate water scarcity

- **Water availability** is becoming a major issue all over France for growers
- In France, waste water is not seen as an option by the farmers on fresh produce
 - ➔ Need to improve irrigation methods and identify resistant varieties

Project on **melon** - model plant due to its sensitivity to lack/excess of water

1. Improving **irrigation methods**

- Study among producers to identify innovative irrigation methods
- Evaluate the adoptability / generalisation capacity of these methods

2. Identify **resistant varieties**

- Which varieties are the most resistant to water stress

INVASIVE PESTS

- The **higher temperatures** increase the living and development of certain invasive pest such as **bugs**.
“Old” protection methods are not fit.

→ Need innovative protection strategies:

Project IMPULSE on tomato, eggplant and cabbage

- Included a **characterization of the species of bugs** present and of the natural diversity of bug parasitoids to help identifying natural enemies and potential biological control agents
- Several **management methods for phytophagous bugs** on tomato, eggplants and cabbage crops were evaluated :
 - Crops under cover: management methods based on **physical protection** (nets, chromatic sticky traps) and **biological control** (parasitoids, entomopathogenic nematodes) show best results
 - Open field: **trap plants**, especially when co-planted, are efficient but further technical adjustments and economic studies are needed



Irregular weather patterns – Impact on plant physiology

- The seasons become less predictable with **irregular episodes of cold / heat**
 - ➔ **negative impact on plants** with need for cold for their development

Study on strawberry varieties

- Analyse the **capacity of existing strawberry varieties to adapt to climatic changes** by increasing artificially the temperatures at day / night
 - What are the consequences on the plant development and plant physiology?
 - Impact on nutritional and taste quality?
 - Difference in yield?
- ➔ Identify the most suitable varieties

Irregular weather patterns – impact on crops grown under cold shelter

- Earlier periods of strong sun / heat
 - First heat peaks/periods of **excessive sunshine arrive more and more prematurely** followed by cold weather
 - The **usual solution** to protect crops grown under non-heated shelter **not suitable at an early stage** (permanent painting) because still cold periods → limiting for plant growth
 - Test the performance of a **controllable non-permanent shade net** to reduce temperatures in shelters in the period before application of permanent coverage



OUTLOOK

- More experimental work is being rolled out:
 - **Open field protection:** create shading systems adapted to open field (ex. net, plant cover in various height, photovoltaic panels)
 - **Soil:** impact of agroecological practices and the capacity of the soil to absorb the impact of climate change
 - hypothesis: if the soil is used less, it will be able to better absorb water/thermal stress and therefore better protect the plant
 - **Plant knowledge:** improve the knowledge on plants in relation to abiotic stress (thermal, water...)

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All information on the workshop is available
on the **[EU CAP Network website](#)**

On the event webpage: **https://eu-cap-network.ec.europa.eu/events/eu-cap-network-workshop-enhancing-food-security-under-changing-weather-patterns-farm_en**