Conceive and evaluate innovative orchard management systems to reduce dependance to phytosanitary products.

EcoPêche 2 : a multipartenarial project
CTIFL is the referent organisation for applied research in the French fruit & vegetable sector.

Through its studies and innovations, it contributes to the development and the diversification of production and marketing methods for all actors involved in the value chain.

- Searching for alternatives for pesticides
- Maintaining the quality of fruits and vegetables all the way to the consumer
- Reducing the use of fossil energy in greenhouses
- Study and development of solutions for mechanisation and automation
- Evolution of fruit & vegetable consumption patterns
Low input peach production challenges

- Strong societal expectations
- No tolerant/resistant cultivars
- Reduction of authorized active ingredients
- Highly competitive market
- Maintain high quality products (sanitary and organoleptic)
- Maintain economic sustainability

A highly challenged production system
Material and method

EcoPêche 1
- 2013-2018
- TFI : - 50 %

EcoPêche 2
- 2019-2023
- TFI : - 70 to 80 %

6 partners
- CTIFL
- SEFRA
- SUDEXPE
- CENTREX
- INRAE Avignon
- INRAE Gotheron
Material and method

- A global approach

- 5 systems
- At least Eco + and Reference (IFP) on each site
- Eco + : combination of variables

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<th>Eco +</th>
<th>Reference (IFP)</th>
<th>Eco 50</th>
<th>0 residue</th>
<th>Organic (OF)</th>
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Objectives Eco + system

• Very ambitious environmental objectives: Use **phytosanitary products in last resort**
  – Reducing TFI from 70-80 % comparing IFP
  – Producing fruits with 0 pesticides residues
  – No use of herbicide
  – Non-biocontrol TFI < 4

• **Maintain** a high **quality** of products

• **Maintain economic** results
Various technical solution

Redesign

Rain protection to control brown rot

Fruit wall to promote aeration

Efficiency

Tangential flow sprayer to reduce spraying liquid volume

Substitution

Mineral oils
Glue
Sexual confusion...

Functional biodiversity

Flower strips to promote biodiversity
Environmental performance

Average non biocontrol and biocontrol TFI per site and modality. Average 2019-2021

Average non biocontrol and biocontrol TFI per modality. Average 2019-2021

Non-biocontrol TFI reduced - 82 ± 7 %
Environmental performance - Non-biocontrol TFI

Average non biocontrol TFI per site, target and modality. Average 2019-2021

Fungicides : - 74 %
Insecticides : - 90 %
Agronomic performance

Five sites average cumulative commercialized yield per modality (expressed in T ha\(^{-1}\)). 2021 results penalized by frost damage.

A lower production
- Trees weaked by diseases and pests
- High waste rate (brown rot, forficulae)

Aphids
Leaf curl
Techno-economic performance

Eco +
- More environmental friendly
- Lower techno-economic results
  - more variability
  - Losses not economicaly compensated
Conclusion

Environmental objectives reached...
... with agronomic and techno-economic performance depreciated

EcoPêche 2 project
• Very ambitious objectives
• Next step: find compromises and appropriated cursors levels
• A toolbox for stakeholders
Thank you for your attention

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01/06/2022

X International peach symposium (Naoussa, Greece)
Réussir aujourd’hui, c’est imaginer demain.