



FOX – Food processing in a Box

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Lead WP Demonstration and Exploitation



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H2020 – FOX project

Innovative down-scaled food processing in a box



Surplus goods

- | | |
|-------------------|---|
| FOOD | Fresh fruit and vegetables |
| PROCESSING | mildly processed through innovative, small-scale technologies |
| IN A BOX | in flexible and mobile container units, tailored to the FOX regions |

- Research & Innovation Action, H2020
- Multi-actor approach
- 25 partners, 8 EU countries
- 06/2019 – 11/2023



Model regions in Europe & technologies

The 4 European regions (Food Circles)



Food Circle 1
Low oxygen juice extraction and mild preservation
Bodensee, DE



Apples



Spiral filter press and pulsed electric field (PEF)



Food Circle 2
Low temperature drying
Kuyavian-Pomeranian
Volvodeship, PL & Central
Bohemian CZ



Apples, strawberries, carrots, mushrooms



Non-thermal pre-treatment methods (PEF, US, and HHP)



Food Circle 3
Quality analysis and sustainable packaging
Valencia, SP & Provence
Alpes Côte d'Azur, FR



Cucumber, apricots, (water)melons, nuts



Compostable bags and thermoformed trays



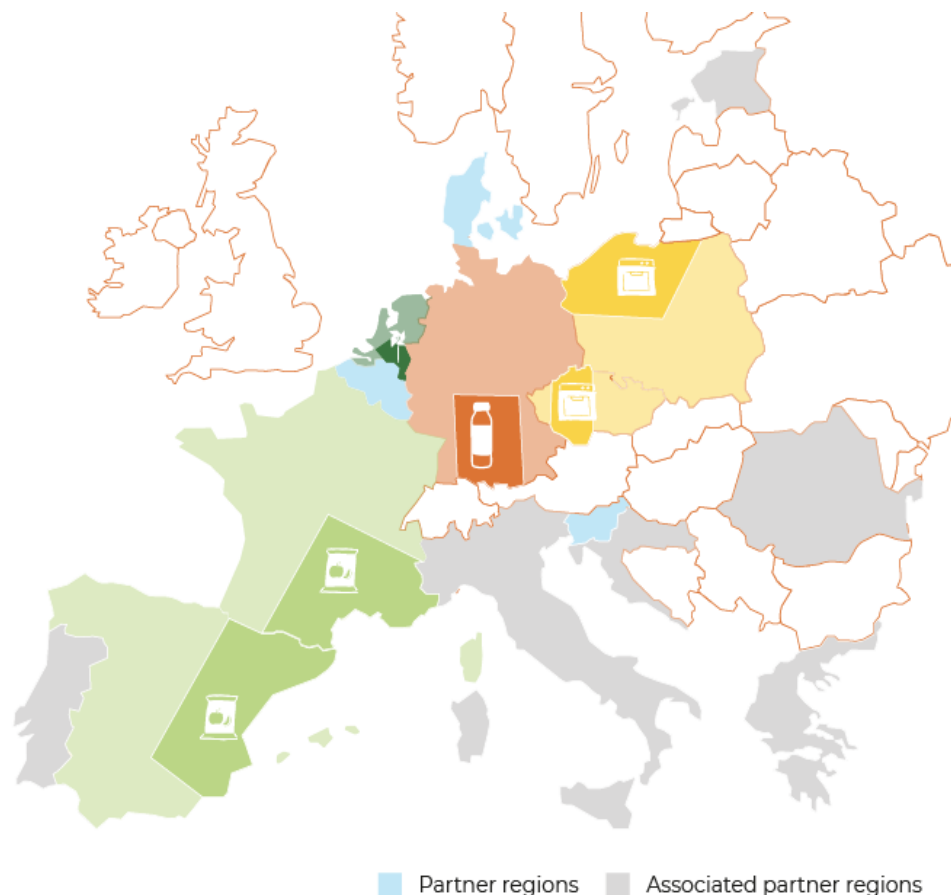
Food Circle 4
Upscaling plant side streams
Noord-Brabant, NL



Green peas and carrot pomace



Mild processing technologies: high pressure, PEF, supercritical CO₂, mild thermal technologies

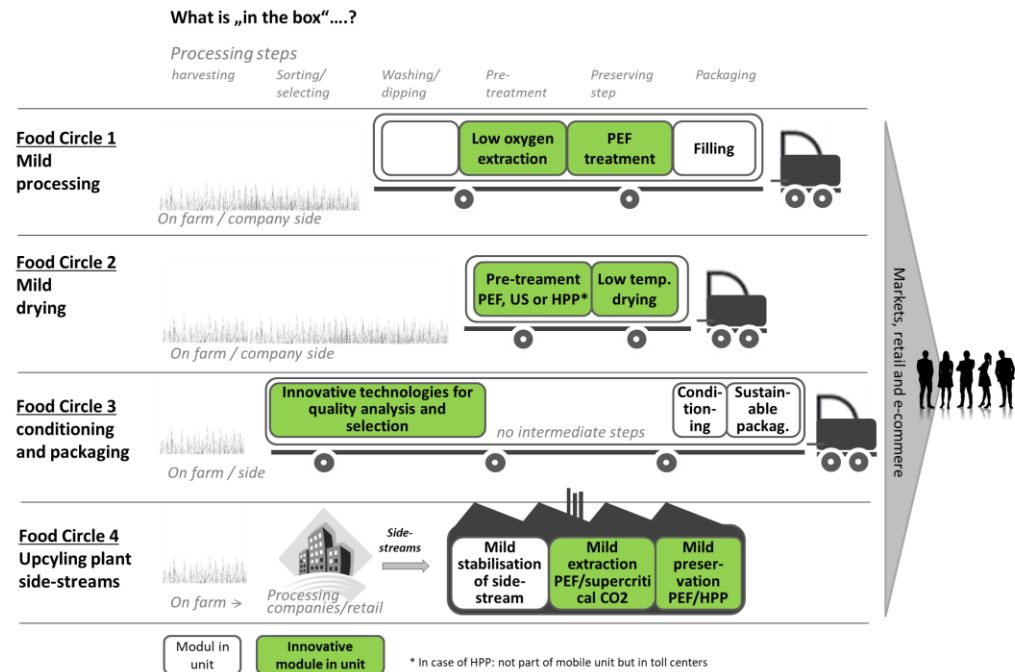




FOX objectives I

Segment TECHNICAL RESEARCH

- Achieve **optimal physical and nutritional quality of the fruit and vegetable products** by downscaling innovative mild processing technologies in **mobile/modular processing units**
- Minimise the use of resources through developing **sustainable packaging materials**
- Design, test & validate technologies in four European model regions (food circles)



EXAMPLE: Food Circel 1

Model region Bodensee / Lake Constance

Low oxygen juice extraction and mild preservation

Fresh, local and healthy juice in a mobile container

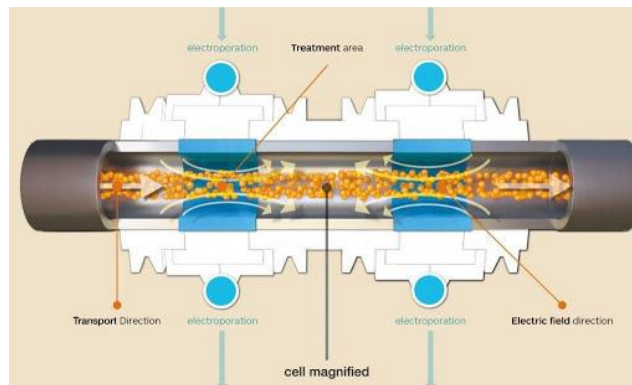
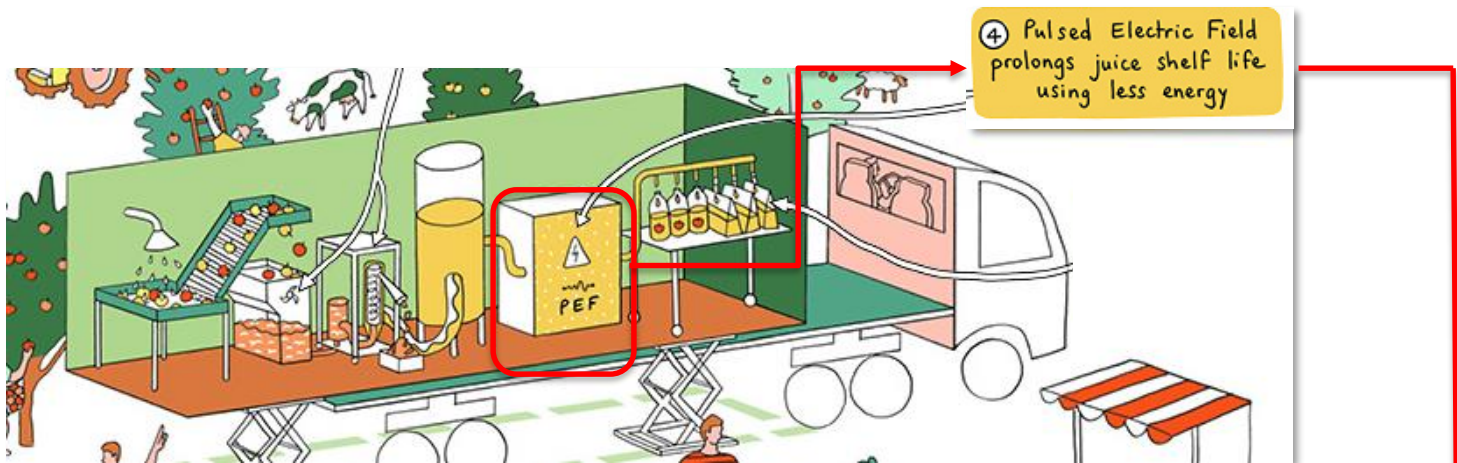




EXAMPLE: Food Circel 1

Model region Bodensee / Lake Constance

Low oxygen juice extraction and mild preservation





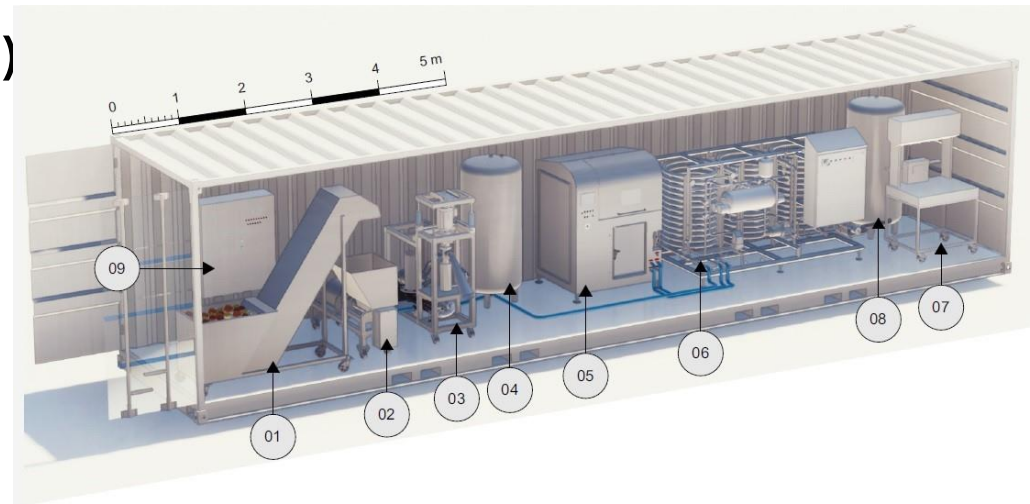
Food Circle 1: Juice processing DESIGN

Objectives

- High-quality fruit juices and puree production and flexible production for different types of fruits
- Practical and simple installation and operation(s)
- During the harvest period, the mobile processing unit at the farm should process a peak amount of fruits without quality loss.

Processing steps

- Washing
- Crushing
- Juice extraction
- Juice preservation
- Juice Filling



- | | | |
|------------------------|---|------------------|
| 01 Washing elevator | 05 PEF | 09 Control panel |
| 02 Multicut unit | 06 Liquid handling system (LHS) | |
| 03 VaculiQ | 07 Filling system | |
| 04 Product buffer tank | 08 Product buffer tank for filling system | |



Food Circle 1: Juice processing DEMONSTRATION



Mobile system:

- Testing & validation
- Feasibility & practical studies





FOX objectives II

Segment **IMPACT**

- Analyse trends and develop **specific future scenarios** for food innovation systems
(Studies)
- Identify and evaluate **business models**
- Design strategies to **engage consumers in co-creation processes** (FOXLINK app)
- Assess the impact of regional approaches and products (environmental, socio-economic and health)
(scientific paper)

Segment **OUTREACH**

- **Demonstrate** mobile/modular processing units in **model regions and beyond**
- Build up an **interactive stakeholder processs** (EU Interest Group, workshops)
- Explore use of FOX results for commercial purposes (Ex.Dis.Plan)
- Communicate and disseminate results (FOX Website, newsletter, video clips, social media campaign..)





Our partners



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Thank you.



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