FACULTY OF BIOSCIENCE ENGINEERING

SUSFOOD2

CORE organic

BIO4FOOD

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HortiCell

Joint Project Seminar
16-17 November, 2022

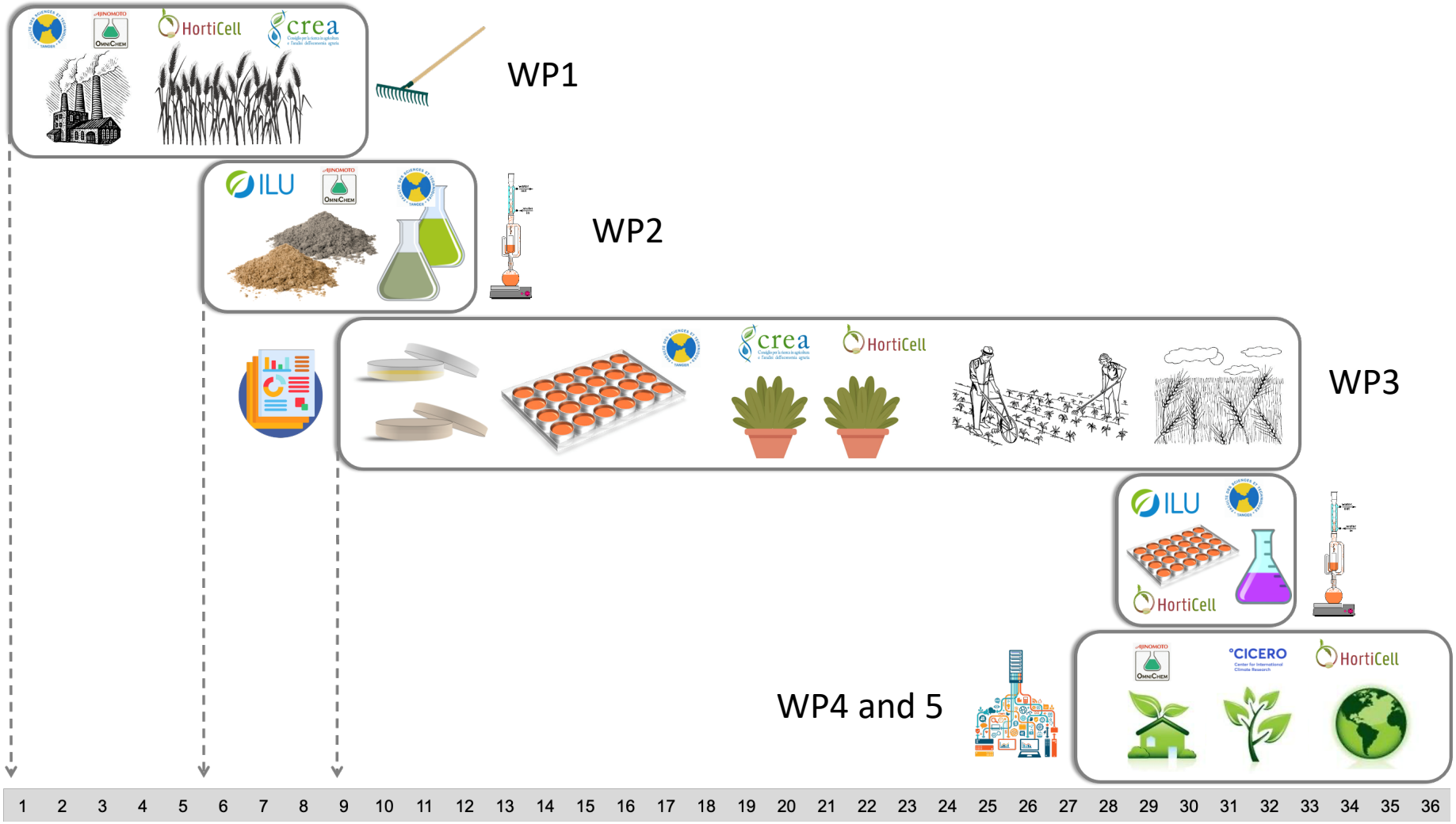
GHENT UNIVERSITY

Danny Geelen
www.horticell.ugent.be

BIO4FOOD

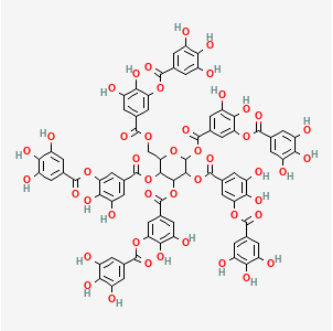
Sustainable and organic food systems by implementing biostimulants and biopesticides derived from food and crop waste

Project overview



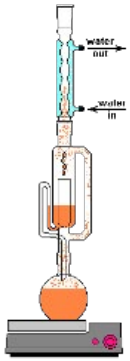
WP1: Acquisition of crop waste

=> 8 sources of herbal and other crop waste was collected



=> 3 sources of crop extraction residue high in tannin was collected

WP2: Crop waste transformation



⇒ out of 8+3 waste streams, we prepared 45 water and EtOH extracts
⇒ CREA generated compost following 3 different processes
⇒ extracts were freeze dried and send to CREA and Ugent
⇒ FSTT tested rosemary extracts and send it also to CREA and UGent

WP3: Validation of crop performance

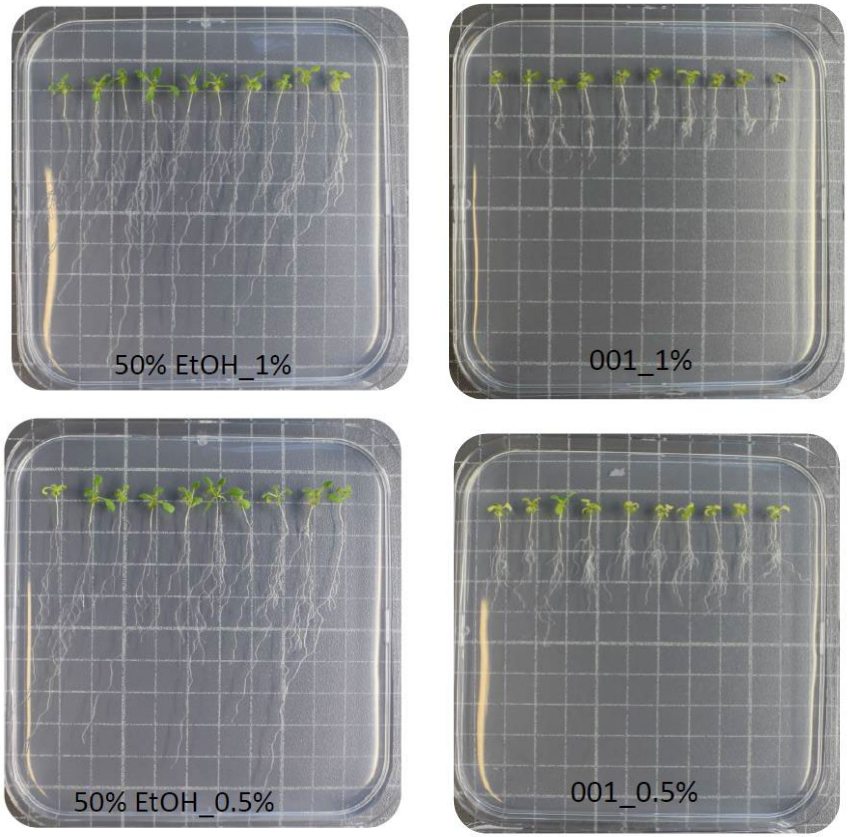
- **In vitro tests:**
  - root and shoot growth
  - fungicide activity
  - nematicide activity

- **Pot experiments:**
  - 5 extracts in 72 pots, (9 treatments x 8 replicates)

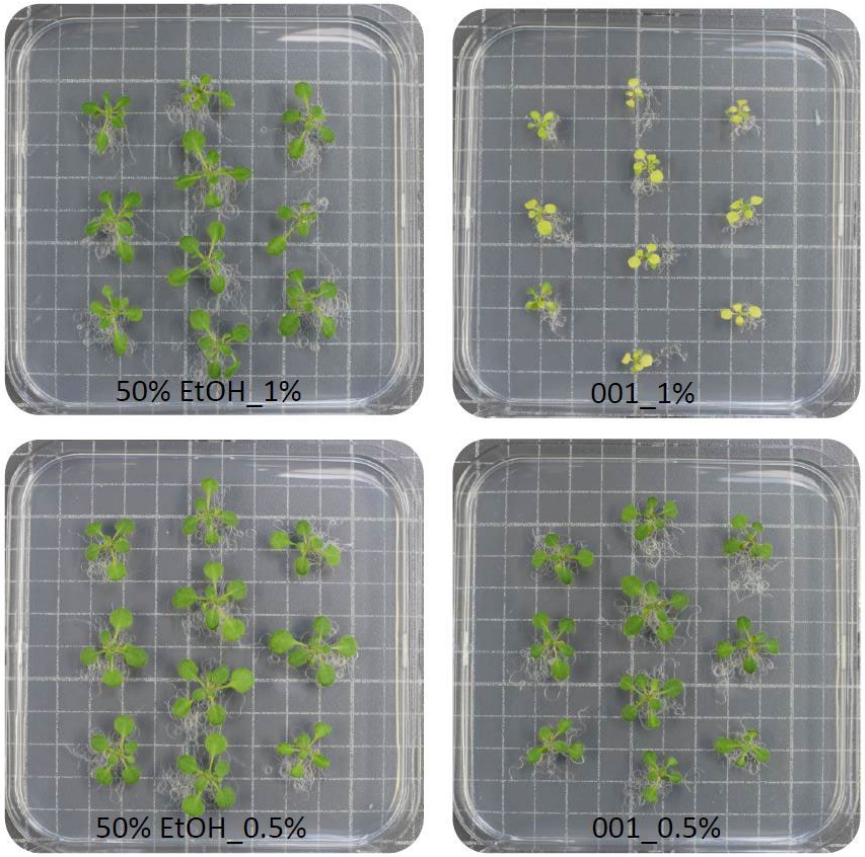
- **Field trials:**
  - organic, 2 year, rotation fennel-tomato, measuring yield and nutrient concentrations (Fe, Zn, Mg, Cu)
  - winter crop Fennel using parsley extract
  - spring summer Tomato, using basil extract

WP3: Example root and shoot assay

Root assay



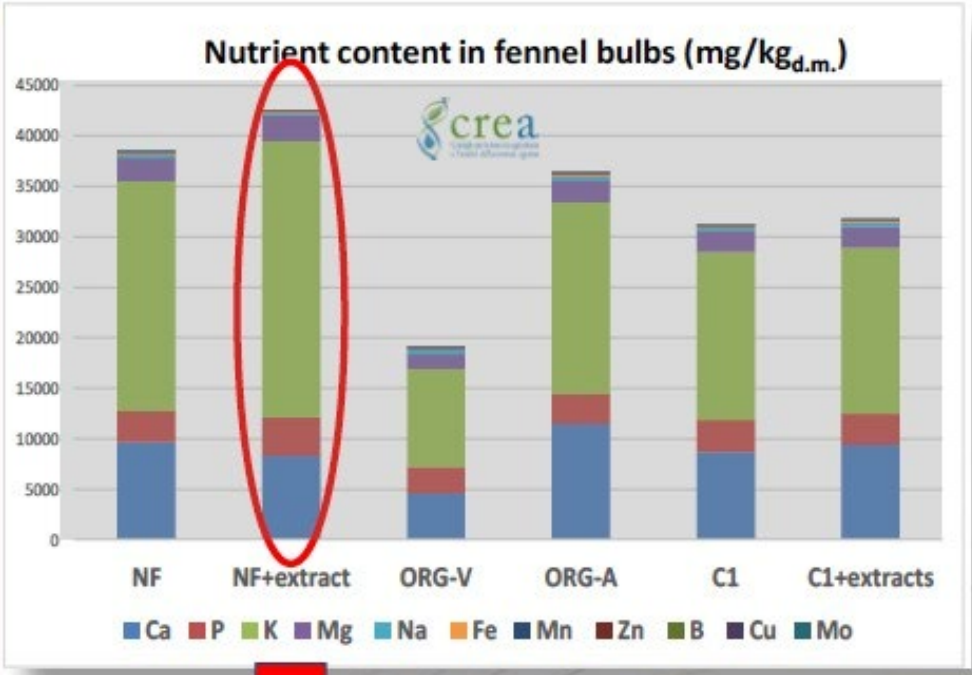
Shoot assay



Field experiment

crea
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria

Macro (P, K), meso (Ca, Mg, Na, Fe) and micronutrients (Mn, Zn, B, Cu, Mo) in fennel bulbs



NF = not fertilized control

NF + extract = control + parsley extract 1:5 (most performing extract from ILU)

ORG-V = organic commercial fertilizer of vegetal origin)

ORG-A = organic commercial fertilizer of animal origin

C1 = compost (2021)

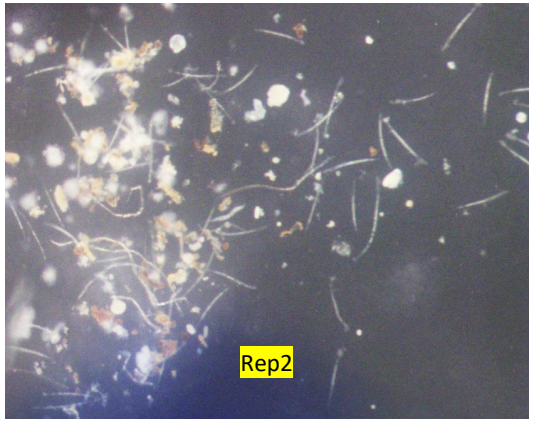
C1 + extract = compost + parsley extract 1:5

In absence of fertilization, **parsley extract** gave the **highest total mineral nutrient content** in fennel bulbs.
Lowest mineral nutrient density recorded under **ORG-V** fertilizer

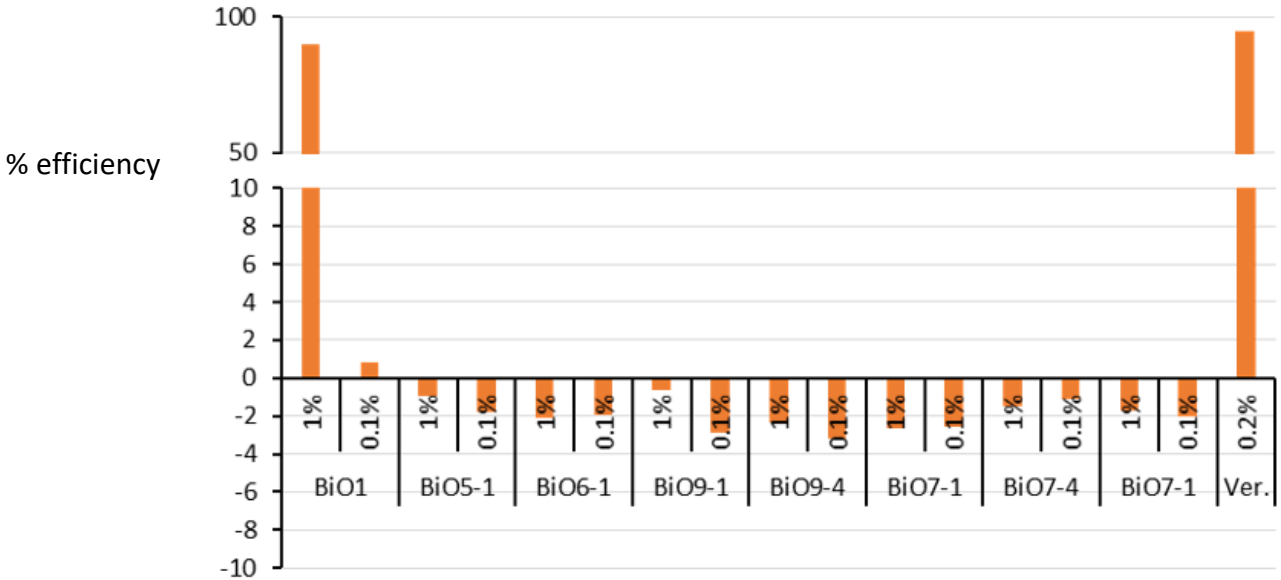
WP4: Road map of a selected product

Water: alive, curly and swirling

Vertimec 0.2%: dead, straight



Bio1 1%



Next year:

WP3: Validation of crop performance

- repetition of field and pot experiments
- additional fungicide and nematicide testing
- fractionation of extracts and dereplication analyses

WP4: Road map

- calculation of production cost
- efficacy testing
- further purifications

WP5: socio-economic studies

- this will be done in collaboration with another partner.

WP6: Communication and dissemination

- SABB2022 meeting follow up: perhaps a COST application

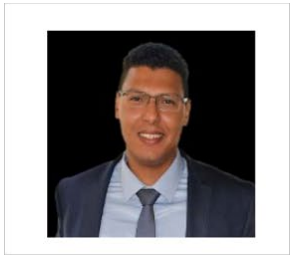
Prof. Danny Geelen
Head of Horticell
Plants and Crops Department, UGent
Belgium

Dr. Maaike Perneel
Industrial Officer Manager
CropFit, UGent
Belgium

Dr. Taoyuan Wei
Center for International and Cliimate
and Enviromental Research (CICERO)
Norway

Mr. Pieter van Grieken
Sales Mnager
Ajinomoto Omnichem
Belgium

Prof. Daniel Pleissner
Institute for food and
enviromental research (ILU)
Germany



Prof. Abderrazak Rfaki
Department of Biology
Faculty of Science and Technology of Tangier (FSTT)
Marroco

Dr. Mariangela Diacono
Council for Agricultural Research and Economics.
Agriculture and Enviroment Research Center (CREA)
Italy