

PhD Thesis Defense

On **Friday February 14th 2025 at 9.00 am** in the classroom **G**, Via Santa Sofia 100

Federico Basile (XXXVII cycle)

Will discuss his PhD theses titled

Novel Plant Biostimulants to Improve Sustainability and Functional Traits of Pivotal Mediterranean Crops: Tomato and Carrot

Thesis Abstract

Without manufactured inputs like mineral fertilizers, agriculture could not have supported the current global population on existing cultivated lands, underscoring their crucial role amid anticipated population growth. However, intensive cropping systems have led to significant environmental issues due to excessive resource use and the emission of greenhouse gases and other pollutants that threaten public health and ecosystems. Enhancing resource use efficiency (RUE), especially for environmentally problematic resources like nitrogen (N) fertilizers, is essential for achieving global food security. Nitrogen fertilizers often exhibit low use efficiency, with a substantial portion of applied N leaching into water bodies or volatilizing as reactive gases into the atmosphere. Additionally, their production consumes enormous amounts of energy. Therefore, optimizing Nitrogen use efficiency (NUE) is vital for sustainable agriculture. This can be accomplished by integrating breeding programs with agronomic tools focused on improving RUE. In this context, plant biostimulants have shown significant potential in enhancing nutrient uptake and overall use efficiency. This research project aimed to evaluate a range of novel extracts for their biostimulant activity on tomato and carrot, two key crops in the Mediterranean diet. The effects of these biostimulants were assessed in terms of NUE, crop productivity, quality, and nutraceutical traits of the product.

Advisor:

Prof. Cherubino Leonardi

Co-Advisor

Prof. Rosario Mauro



UNIONE EUROPEA
Fondo Sociale Europeo



PON
RICERCA
E INNOVAZIONE
2014 - 2020

REACT EU