BIO² Project Launches to Make Organic Farming Safer, Smarter, and More Sustainable

Bologna, Italy — June 2025

The Horizon Europe project BIO² – Natural Solutions for Organic Farming – has officially launched with a kickoff meeting held in Bologna from June 19–20, 2025. Spanning four years and uniting 20 partners from eight countries, BIO² is on a mission to help organic farming move beyond contentious inputs — including copper and sulfur-based fungicides, antiparasitic drugs, and fertilizers contaminated with pesticide residues.

BIO² develops natural, bio-based alternatives that are tested under real farming conditions. The project brings together researchers, farmers, companies, and circular economy innovators to build a future-ready organic sector — one that protects crops, animals, and the planet alike.

The Challenge: Contentious Inputs in Organic Agriculture

While organic farming restricts synthetic chemicals, several inputs still permitted under organic regulations pose environmental, health, and ethical concerns. Copper and sulfur-based fungicides endanger pollinators and soil organisms, antiparasitic drugs and antibiotics in livestock promote resistance and contaminate ecosystems, and fertilizers from manure or compost may carry pesticide residues that damage sensitive crops, lower yields, and harm soil health.

The Solution: Safe and Circular Innovations

BIO² addresses these issues head-on with science-based, nature-inspired alternatives.

Microorganisms for Crop Protection: Beneficial yeasts, bacteria, and microalgal extracts with fungicidal activity are encapsulated in natural polymers to protect them from field stress and extend their effect as biocontrol agents.

Bio-based Fertilizers: Made from fish side-streams, algae, urine, and microorganisms, they deliver balanced nutrition without pesticide residues and reduce reliance on animal-based inputs.

Natural Animal Health Products: Microbial immunostimulants and bark extracts help reduce antibiotic and antiparasitic use, supporting animal welfare and soil health.

Tested Across Europe — With Farmers, For Farmers

BIO² solutions are tested on wheat, grapes, strawberries, and potatoes — from Nordic climates to Mediterranean vineyards. Fertilizers and health products are also trialled on soils and livestock. This ensures that all products are effective, scalable, and aligned with the needs of Europe's organic farmers.

A Strong Consortium — 20 Partners from 8 Countries

The BIO² consortium includes:

Research & Technology Organisations: *Consiglio Nazionale delle Ricerche (CNR, Italy)*, *NOFIMA AS (Norway)*, *Norwegian Centre for Organic Agriculture – NORSØK (Norway)*, *Norsk Institutt for Bioøkonomi – NIBIO (Norway)*, *Instituto Vasco de Investigación y Desarrollo Agrario SA – NEIKER (Spain)*, *Agroresursu un Ekonomikas Instituts – AREI*

(Latvia), *Fundación AZTI – AZTI Fundazioa (Spain)*, *Austrian Centre of Industrial Biotechnology – ACIB GmbH (Austria)*

Academic Institutions: *Università degli Studi di Udine (Italy)*, *Università degli Studi di Milano (Italy)*, *Universität Rostock (Germany)*, *Sofia University St. Kliment Ohridski (Bulgaria)*

Companies and Start-Ups: *ROMB OOD (Bulgaria)*, *Fertinagro Biotech SL (Spain)*, *Grønn Gjødsel AS (Norway)*, *Rovensa Group – Trade Corporation International SA (Spain)*, *Sanitation360 AB (Sweden)*, *Innovation Acta SRL (Italy)*

Farmer and Advisory Organisations: *Norsk Landbruksrådgiving SA – NLR (Norway)*, *Asociación Valenciana de Agricultores – AVA-ASAJA (Spain)*

"With BIO², we aim to make a lasting impact on both organic and conventional farming. While supporting the EU Green Deal's goal of 25% organic farmland by 2030, our ambition goes further — promoting agroecological principles, healthier soils, and reduced reliance on synthetic inputs. By combining biotechnologies, natural materials, circular strategies, and material science, we develop scalable solutions tested under real farming conditions. BIO² contributes directly to Sustainable Crop Production Intensification and the global goal of producing more food with less environmental impact. The shift toward sustainable food systems can't wait — and BIO² is a concrete step forward." says **Dr. Alessio Adamiano**, project coordinator at CNR.

Backed by the EU

BIO² is funded with six million euros through the European Union's Horizon Europe Innovation Action programme, under grant agreement No. 101181331. It supports key European priorities such as the Farm to Fork Strategy, the Zero Pollution Action Plan, and the transition to a circular bioeconomy.

For more information, visit: bio2project.eu
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Funded by the European Union