

HORIZON
2020

Stacking of ecosystem services: mechanisms and interactions for optimal crop protection, pollination enhancement, and productivity

Results

Project Information

EcoStack

Grant agreement ID: 773554

[Project website](#) 

DOI

[10.3030/773554](https://doi.org/10.3030/773554) 

Project closed

EC signature date

24 July 2018

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End date

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SOCIETAL CHALLENGES - Food security, sustainable agriculture and forestry, marine, maritime and inland water research, and the bioeconomy

Total cost

€ 10 050 109,75

EU contribution

€ 9 963 866,00

Coordinated by

UNIVERSITA DEGLI STUDI DI
NAPOLI FEDERICO II



Italy

CORDIS provides links to public deliverables and publications of HORIZON projects.

Links to deliverables and publications from FP7 projects, as well as links to some specific result types such as dataset and software, are dynamically retrieved from [OpenAIRE](#) .

Deliverables

Documents, reports (35)

[EIP-Practice Abstract 3](#)

"The resulting innovative knowledge and easy accessible end-user material from EcoStack will feed as ""Practice Abstract"" into the EIP-AGRI website for broad dissemination."

[Impact of floral resources on ESP dynamics](#)

Documented impact of how temporal availability of floral resources affects dynamics and movement of ESP, and crop yield for mass flowering crops

[Exploiting plant endophytes](#)

Exploiting plant endophytes to steer higher trophic level interactions for pest control

[Effects of in-crop interventions on the functioning of plant microbiome](#)

Assessment of the effects of in-crop interventions on the composition and functioning of plant microbiome

[Socio-economic impact of EcoStack in selected EU countries](#)

Feasible socio-economic impacts of EcoStack strategies in selected EU countries including cost-benefit-analysis (CBA)

[Policy briefs to promote the exploitation of functional biodiversity](#)

Development of policy briefs on options for exploitation of functional biodiversity

[DNA diagnostic tool for pesticide application](#)

A rapid DNA diagnostic tool for pesticide application decision-making based on parasitism rates of key agricultural insect pests

[Actor Workshops](#)

Actor Workshops Strategies for Change report outlining PrOACT outcomes

[Scoping study and review of the current system state](#)

Scoping study report and baseline assessment on actor influence and review of current system state

[EU-wide screening of invertebrate ESP species' ecotoxicology](#)

Completion of the EU-wide screening of invertebrate ESP species' ecotoxicology

[Description of companion cropping strategy](#)

Description of an effective companion cropping strategy for European agriculture to generate enhanced ecosystem services

[User manual for ECOSTACK practitioners](#)

Preparation and dissemination of a user manual for ECOSTACK practitioners

[Insecticide Species Sensitivity Distribution \(SSD\) profiles for key ESP species](#)

Species Sensitivity Distribution (SSD) profiles defined for key ESP species for insecticides most commonly and/or used in the largest quantities in the EU

[EIP-Practice Abstract 4](#)

"The resulting innovative knowledge and easy accessible end-user material from EcoStack will feed as "Practice Abstract" into the EIP-AGRI website for broad dissemination."

[EIP-Practice Abstract 1](#)

The resulting innovative knowledge and easy accessible enduser material from EcoStack will feed as Practice Abstract into the EIPAGRI website for broad dissemination

[Guidance materials for best use of floral resources](#)

Guidance materials for farmers on how to best use floral resources for improving yields

[Integration of plant protection tools](#)

Synergistic combinations of novel plant protection tools from different biological sources

[Best integration of in-crop interventions](#)

Additive benefits of combining in-crop interventions assessed at farm scale

[Methods for testing ESPs insecticide resistance](#)

Handbook of standard methods for testing invertebrate ESPs for resistance to pesticides

[Socio-economic impact of EcoStack](#)

Analysis of the socio-economic overall potential of EcoStack strategies

[DNA-barcode inventories of ESP and interacting organisms](#)

Development of DNA-barcodes and accompanying inventory for a complete range of ESP and the organisms they interact with

[Policy options for regulatory systems](#)

Development of policy options for regulatory systems

[Guidance on crop cultivar mixtures to enhance insect biocontrol](#)

Guidance on using crop cultivar mixtures adapted to different pedo-climatic zones to suppress insect pests and to enhance biological pest control by natural enemies

[Exploitation of crop-microbe interaction for pest control](#)

Analysis and exploitation of microbe-plant interactions enhancing ecosystem service provision and plant defense barriers

[EIP-Practice Abstract 2](#)

The resulting innovative knowledge and easy accessible enduser material from EcoStack will feed as Practice Abstract into the EIPAGRI website for broad dissemination

[Use of microbial consortia and endophytes](#)

Exploitation of microbial consortia and endophytes in different cropping systems for promoting plant growth and defense

[Simulation of policy options uptake](#)

Simulated consequences of policy options based on realistic uptake scenarios for policy consultation

[ESP interaction network created by inclusion of metabarcoding](#)

New DNA-metabarcoding protocols to quantify ESP interactions, with quantitative ecological network information of in-crop and off-crop usage for targeted management

[Use of plant signals for pest control](#)

Development of protocols for the use of plant defence signalling peptides to enhance plant defense barriers

[Using soil management for in-crop generation of biocontrol services](#)

Development of new strategies of soil management for in-crop generation of biocontrol services

[European scale analysis of EcoStack impacts \(Northern\)](#)

Results of integrative analyses - European scale analysis of impacts of EcoStack innovations and suggested management strategies

[Impact of organic mulching on ESP](#)

Quantification of in-crop generation of ESP via organic mulching

[European scale analysis of EcoStack impacts \(Southern\)](#)

Results of integrative analyses - European scale analysis of impacts of EcoStack innovations and suggested management strategies

[Assessment of the impact of EcoStack communication and learning activities](#) 

Monitoring and evaluation report on how the learning platform and the communication and learning activities have contributed to effective method deployment

[Policy options for exploitation of functional biodiversity](#) 

Preparation of a handbook on policy options for exploitation of functional biodiversity

Websites, patent fillings, videos etc. (11)

[Video 10](#) 

Video 10 developed and uploaded on the Resource Hub

[EcoStack best practices](#) 

EcoStack best practices implemented on stratified farm networks reflecting relevant European pedo-climatic and socio-economic conditions

[Database on ESP invertebrate species](#) 

Database on the biology and ecology of the most important ESP invertebrate species within study areas

[Actor Groups' constraints, expectation and goals](#) 

Newslettermultilingual website on Actor Groups constraints expectation and goals

[Actor Groups' knowledge and insights](#) 

Development of a knowledge bank of Actor Groups' knowledge and insights

[Dissemination website](#) 

First version of project dissemination website available online

[Tools and strategies for exploitation of ESP beyond EcoStack](#) 

Multi-lingual website disseminating tools and practices for future adaptive co-management to support co-designed cropping systems for improved pest management and pollination beyond EcoStack

[Videos 6-7](#) 

Videos 67 developed and uploaded on the Resource Hub

[Videos 4-5](#) 

Videos 45 developed and uploaded on the Resource Hub

[Videos 1-3](#) 

Videos 13 developed and uploaded on the Resource Hub

[Videos 8-9](#) 

Videos 8-9 developed and uploaded on the Resource Hub

Demonstrators, pilots, prototypes (1)

[ESP abundance across pedo-climatic zones](#) 

A generic, low maintenance image-based tool to track ESP abundance across pedo-climatic zones

Open Research Data Pilot (1)

[Data Management Plan](#) 

Description of the data management life cycle for the data that will be collected processed and generated by EcoStack

Other (2)

[Mathematical model predicting the ESP impact of yield](#) 

Mathematical model to relate quality, quantity and location of habitats for ESP with yield effects from yield maps

[Documented \(ODdox\) open-source model of the key ESP](#) 

Documented (ODdox) open-source model of the key ESP. Final documentation of formal model, code, and including calibration and validation reports

Publications

Peer reviewed articles (65)

Managing large and complex population operations with agent-based models: The ALMaSS
Population_Manager

Author(s): Topping CJ, Duan X

Published in: Food and Ecological Systems Modelling Journal, 2024, ISSN 2667-9809

Publisher: Pensoft Publisher

[GeSoN: A Geo-Social Network model applying bounded rationality to farmers in socio-ecological simulations](#)

Author(s): Antonio Paparella; Luigi Cembalo; Christopher Topping

Published in: Paparella , A , Cembalo , L & Topping , C J 2023 , ' GeSoN: A Geo-Social Network model applying bounded rationality to farmers in socio-ecological simulations ' , Food and Ecological Systems Modelling Journal , vol. 4 , e100714 . <https://doi.org/10.3897/fmj.4.100714>, Issue 5, 2023, ISSN 2367-7163

Publisher: Pensoft

DOI: 10.3897/fmj.4.100714

[How contradictory EU policies led to the development of a pest - the story of oilseed rape and the cabbage stem flea beetle](#)

Author(s): Patricia A. Ortega-Ramos; Samantha M. Cook; Alice L. Mauchline

Published in: GCB Bioenergy, Vol 14, Iss 3, Pp 258-266 (2022), Issue 1, 2022, ISSN 1757-1693

Publisher: Wiley-VCH Verlag

DOI: 10.1111/gcbb.12922

[Colonization of Solanum melongena and Vitis vinifera Plants by Botrytis cinerea Is Strongly Reduced by the Exogenous Application of Tomato Systemin](#)

Author(s): Donata Molisso, Mariangela Coppola, Anna Maria Aprile, Concetta Avitabile, Roberto Natale, Alessandra Romanelli, Pasquale Chiaiese, Rosa Rao

Published in: Journal of Fungi, Issue 7/1, 2021, Page(s) 15, ISSN 2309-608X

Publisher: Fungi

DOI: 10.3390/jof7010015

Diversity of parasitoid wasps (Insecta, Hymenoptera) in oilseed rape fields in Serbia

Author(s): Plećaš, Milan Žikić, Vladimir Kocić, Korana Čkrkić, Jelisaveta Petrović, Anđeljko Tomanović, Željko

Published in: Biodiversity data journal, 2023, ISSN 1314-2828

Publisher: Pensoft Publishers

[Selection of Endophytic Beauveria bassiana as a Dual Biocontrol Agent of Tomato Pathogens and Pests.](#)

Author(s): Martina Sinno; Marta Ranesi; Ilaria Di Lelio; Giuseppina Iacomino; Andrea Becchimanzi; Eleonora Barra; Donata Molisso; Francesco Pennacchio;

Maria Cristina Digilio; Stefania Vitale; David Turrà; Vili Harizanova; Matteo Lorito; Sheridan L. Woo

Published in: Issue 10, Issue 10(10), 2021, ISSN 2076-0817

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)

DOI: 10.3390/pathogens10101242

Companion plants and straw mulch reduce cabbage stem flea beetle (*Psylliodes chrysocephala*) damage on oilseed rape

Author(s): Gaëtan Seimandi-Corda, Julian Winkler, Todd Jenkins, Sascha M Kirchner, Samantha M Cook

Published in: Pest Management Science, 2023, ISSN 1526-4998

Publisher: Wiley

[Impact of Olive Saplings and Organic Amendments on Soil Microbial Communities and Effects of Mineral Fertilization.](#)

Author(s): Miquel Llimós; G. Segarra; Marc Sancho-Adamson; M. Isabel Trillas; Joan Romanyà

Published in: instname:Universitat de Barcelona, Issue 12, 2021, ISSN 1664-302X

Publisher: Frontiers Media

DOI: 10.3389/fmicb.2021.653027

[Trichoderma: a multipurpose, plant-beneficial microorganism for eco-sustainable agriculture](#)

Author(s): Woo, Sheridan L; Hermosa, Rosa; Lorito, Matteo; Monte, Enrique

Published in: Crossref, Issue 12, 2022, ISSN 1740-1526

Publisher: Nature Publishing Group

DOI: 10.1038/s41579-022-00819-5

[Aphidius ervi venom regulates Buchnera contribution to host nutritional suitability](#)

Author(s): Russo, Elia; Di Lelio, Ilaria; Shi, Min; Becchimanzi, Andrea; Pennacchio, Francesco

Published in: Journal of Insect Physiology, Issue 147, 2023, ISSN 0022-1910

Publisher: Pergamon Press Ltd.

DOI: 10.1016/j.jinsphys.2023.104506

[Not Only Systemin: Prosystemin Harbors Other Active Regions Able to Protect Tomato Plants](#)

Author(s): Donata Molisso; Mariangela Coppola; Martina Buonanno; Ilaria Di Lelio; Anna Maria Aprile; Emma Langella; Maria Manuela Rigano; Silvana Francesca; Pasquale Chiaiese; Gianna Palmieri; Rosarita Tatè; Martina Sinno; Eleonora Barra; Andrea Becchimanzi; Simona Maria Monti; Francesco Pennacchio; Francesco Pennacchio; Rosa Rao; Rosa Rao

Published in: info:cnr-pdr/source/autori:Molisso D, Coppola M, Buonanno M, Di Lelio I, Aprile AM, Langella E, Rigano MM, Francesca S, Chiaiese P, Palmieri G, Tatè R, Sinno M, Barra E, Becchimanzi A, Monti SM, Pennacchio F and Rao

R/titolo:Not Only Systemin: Prosystemin Harbors Other Active Regions Able to Protect Tomato Plants/doi:10.3389/fpls.2022.887674/rivista:Frontiers of plant science/anno:2022/pagina_d, Issue 11, 2022, ISSN 1664-462X

Publisher: Frontiers Media S. A.

DOI: 10.3389/fpls.2022.887674

[Transgenic plants expressing immunosuppressive dsRNA improve entomopathogen efficacy against *Spodoptera littoralis* larvae](#)

Author(s): Ilaria Di Lelio; Eleonora Barra; Mariangela Coppola; Giandomenico Corrado; Rosa Rao; Silvia Caccia

Published in: Crossref, Issue 95, 2022, Page(s) 1413-1428, ISSN 1612-4758

Publisher: Springer Verlag

DOI: 10.1007/s10340-021-01467-z

[Root biomass and cumulative yield increase with mowing height in *Festuca pratensis* irrespective of *Epichloë* symbiosis](#)

Author(s): Miika Laihonon; Kalle Rainio; Traci Birge; Kari Saikkonen; Marjo Helander; Benjamin Fuchs

Published in: Scientific Reports, Issue 12, 2022, ISSN 2045-2322

Publisher: Nature Publishing Group

DOI: 10.1038/s41598-022-25972-y

[Editorial The Plant Holobiont Volume II Impacts of the Rhizosphere on Plant Health](#)

Author(s): Nadia Lombardi; Sheridan Lois Woo; Francesco Vinale; David Turrà; Roberta Marra

Published in: Frontiers in Plant Science, Issue 1, 2021, ISSN 1664-462X

Publisher: Frontiers Media S. A.

DOI: 10.3389/fpls.2021.809291

[Relative efficiency of methods to estimate cabbage stem flea beetle \(*Psylliodes chrysocephala*\) larval infestation in oilseed rape \(*Brassica napus*\)](#)

Author(s): Seimandi-Corda Gaëtan; Hall Jamie; Jenkins Todd; Cook Samantha

Published in: Pest management science, Issue 1, 2022, ISSN 1526-498X

Publisher: John Wiley & Sons Inc.

DOI: 10.1002/ps.7341

[Network science: applications for sustainable agroecosystems and food security](#)

Author(s): Fredric M. Windsor; Dolors Armenteras; Ana Paula A. Assis; Julia Astegiano; Pamela C. Santana; Luciano Cagnolo; Luísa G. Carvalheiro; Clive Emary; Hugo Fort; Xavier I. Gonzalez; James J.N. Kitson; Ana C.F. Lacerda; Marcelo Lois; Viviana Márquez-Velásquez; Kirsten E. Miller; Marcos Monasterolo; Marina Omacini; Kate P. Maia; Tania Paula Palacios; Michael J.O. Pocock; Santiago L. Poggio; Isabela G

Published in: Perspectives in Ecology and Conservation, Issue 1, 2022, ISSN

2530-0644

Publisher: Elsevier

DOI: 10.1016/j.pecon.2022.03.001

[Endophytic Fungi of Tomato and Their Potential Applications for Crop Improvement](#)

Author(s): Martina Sinno, Marta Ranesi, Laura Gioia, Giada D'Errico, Sheridan Lois Woo

Published in: agriculture, 2020, ISSN 2077-0472

Publisher: MDPI

DOI: 10.3390/agriculture10120587

[Sublethal Endpoints in Non-target Organism Testing for Insect-Active GE Crops](#)

Author(s): Andrew Roberts, Chad J. Boeckman, Marina Mühl, Jörg Romeis, John L. Teem, Fernando H. Valicente, Judith K. Brown, Martin G. Edwards, Steven L. Levine, Rachel L. Melnick, Thais B. Rodrigues, Ana M. Vélez, Xuguo Zhou, Richard L. Hellmich

Published in: Frontiers in Bioengineering and Biotechnology, Issue 8, 2020, ISSN 2296-4185

Publisher: Frontiers in Bioengineering and Biotechnology, 8.

DOI: 10.3389/fbioe.2020.00556

[Candy-striped spider leaf and habitat preferences for egg deposition](#)

Author(s): Jordan P. Cuff, Sharon Aifionn Evans, Ian Angel Porteous, Julia Quiñonez, Darren M. Evans

Published in: Agricultural and Forest Entomology, 2022, ISSN 1461-9555

Publisher: Blackwell Publishing Inc.

DOI: 10.1111/afe.12504

[Tomato Prosystemin is much more than a simple Systemin precursor](#)

Author(s): Donata Molisso; Mariangela Coppola; Martina Buonanno; I. Di Lelio; Simona Maria Monti; C. Melchiorre; Angela Amoresano; Giandomenico Corrado; J. P. D. Frier; Andrea Becchimanzi; Francesco Pennacchio; Rosa Rao

Published in: Biology, Vol 11, Iss 124, p 124 (2022), Issue 11(1), 2022, ISSN 2079-7737

Publisher: MDPI

DOI: 10.1101/2021.09.15.460427

[Sampling pollen beetle \(*Brassicogethes aeneus* \).pressure in oilseed rape: which method is best?](#)

Author(s): Gaëtan Seimandi-Corda, Todd Jenkins, Samantha M Cook

Published in: Pest Management Science, Issue 77/6, 2021, Page(s) 2785-2794, ISSN 1526-498X

Publisher: John Wiley & Sons Inc.

DOI: 10.1002/ps.6310

[Xylella fastidiosa Infection Reshapes Microbial Composition and Network Associations in the Xylem of Almond Trees](#) 

Author(s): Manuel Anguita-Maeso; Aitana Ares-Yebra; Carmen Haro; Miguel Román-Écija; Concepción Olivares-García; Joana Costa; Ester Marco-Noales; Amparo Ferrer; Juan A. Navas-Cortés; Blanca B. Landa

Published in: Crossref, Issue 13, 2022, ISSN 1664-302X

Publisher: Frontiers Media

DOI: 10.3389/fmicb.2022.866085

[Eucalyptus cinerea and E. nicholii by-Products as Source of Bioactive Compounds for Agricultural Applications](#) 

Author(s): Malaspina, Paola; Papaiani, Marina; Ranesi, Marta; Polito, Flavio; Danna, Cristina; Aicardi, Pierluca; Cornara, Laura; Woo, Sheridan L.; De Feo, Vincenzo

Published in: Plants, Issue 11(20), 2022, ISSN 2223-7747

Publisher: MDPI

DOI: 10.3390/plants11202777

[Banker Plant Bonuses? The Benefits and Risks of Including Brassicas in Field Margins to Promote Conservation Biocontrol of Specialist Pests in Oilseed Rape](#) 

Author(s): Matthew. P. Skellern, Suzanne J. Clark, Andrew W. Ferguson, Nigel P. Watts , and Samantha M. Cook

Published in: Insects, 2023, ISSN 2075-4450

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)

DOI: 10.3390/insects14040349

[The predator problem and PCR primers in molecular dietary analysis: swamped or silenced; depth or breadth?](#) 

Author(s): Cuff JP, Kitson JJN, Hemprich-Bennett D, Tercel MPTG, Browett SS, Evans DM

Published in: Molecular Ecology Resources, Issue 17, 2023, ISSN 1755-098X

Publisher: Blackwell Publishing Inc.

DOI: 10.57711/a3ap-h880

[How to promote multifunctionality of vegetated strips in arable farming: A qualitative approach for Germany](#) 

Author(s): Schütz, Lukas; Wenzel, Bettina; Rottstock, Tanja; Dachbrodt-Saaydeh, Silke; Golla, Burkhard; Kehlenbeck, Hella

Published in: Ecosphere, Issue 1, 2022, ISSN 2150-8925

Publisher: ESA

DOI: 10.1002/ecs2.4229

[Plant volatiles as cues and signals in plant communication](#) 

Author(s): Velemir Ninkovic, Dimitrije Markovic, Merlin Rensing

Published in: Plant, Cell & Environment, Issue 44/4, 2021, Page(s) 1030-1043, ISSN 0140-7791

Publisher: Blackwell Publishing Inc.

DOI: 10.1111/pce.13910

[Overcoming the pitfalls of merging dietary metabarcoding into ecological networks](#)

Author(s): James Kitson; Darren Evans; Maximillian Terce; Jordan Cuff; Fredric Windsor

Published in: Methods in ecology and evolution, Issue 1, 2021, ISSN 2041-210X

Publisher: John Wiley and Sons Inc.

DOI: 10.1111/2041-210x.13796

[Temperature Differentially Influences the Capacity of Trichoderma Species to Induce Plant Defense Responses in Tomato Against Insect Pests](#)

Author(s): Ilaria Di Lelio, Mariangela Coppola, Ernesto Comite, Donata Molisso, Matteo Lorito, Sheridan Lois Woo, Francesco Pennacchio, Rosa Rao, Maria Cristina Digilio

Published in: Frontiers in Plant Science, Issue 12, 2021, ISSN 1664-462X

Publisher: Frontiers Media S. A.

DOI: 10.3389/fpls.2021.678830

[Intrinsically disordered Prosystemin discloses biologically active repeat motifs](#)

Author(s): Valeria Castaldi, Emma Langella, Martina Buonanno, Ilaria Di Lelio, Anna Maria Aprile, Donata Molisso, Martina Chiara Criscuolo, Luca Domenico D'Andrea, Alessandra Romanelli, Angela Amoresano, Gabriella Pinto, Anna Illiano, Pasquale Chiaiese, Andrea Becchimanzi, Francesco Pennacchio, Rosa Rao, Simona Maria Monti

Published in: Plant Science, 2024, ISSN 0168-9452

Publisher: Elsevier BV

DOI: 10.1016/j.plantsci.2023.111969

[A dearth of data: fitting parasitoids into ecological networks.](#)

Author(s): Kirsten E. Miller; Kirsten E. Miller; Andrew Polaszek; Darren M. Evans

Published in: Trends in Parasitology, Issue 1, 2021, ISSN 1471-4922

Publisher: Elsevier BV

DOI: 10.1016/j.pt.2021.04.012

[Fusarium Head Blight From a Microbiome Perspective](#)

Author(s): Ida Karlsson, Paula Persson, Hanna Friberg

Published in: Frontiers in Microbiology, Issue 12, 2021, ISSN 1664-302X

Publisher: Frontiers Media

DOI: 10.3389/fmicb.2021.628373

[Late to the Party—Transferred Mulch from Green Manures Delays Colorado Potato Beetle Infestation in Regenerative Potato Cropping Systems](#) 

Author(s): Stephan Martin Junge; Simeon Leisch-Waskönig; Julian Winkler; Sascha Michael Kirchner; Helmut Saucke; Maria Renate Finckh

Published in: Agriculture; Volume 12; Issue 12; Pages: 2130, Issue 12(12), 2022, ISSN 2077-0472

Publisher: MDPI

DOI: 10.3390/agriculture12122130

[Trichoderma Applications on Strawberry Plants Modulate the Physiological Processes Positively Affecting Fruit Production and Quality](#) 

Author(s): Nadia Lombardi, Simonetta Caira, Antonio Dario Troise, Andrea Scaloni, Paola Vitaglione, Francesco Vinale, Roberta Marra, Anna Maria Salzano, Matteo Lorito, Sheridan Lois Woo

Published in: Frontiers in Microbiology, Issue 11, 2020, ISSN 1664-302X

Publisher: Frontiers Media

DOI: 10.3389/fmicb.2020.01364

Editorial: Designing Bio-Formulations Based on Organic Amendments, Beneficial Microbes and Their Metabolites

Author(s): Roberta Marra, Santiago Gutiérrez, Sheridan Lois Woo, Giuliano Bonanomi, and Francesco Vinale

Published in: Frontiers in Microbiology, 2022, ISSN 1664-302X

Publisher: Frontiers Media

[Landscape simplification increases Bactrocera oleae abundance in olive groves: adult population dynamics in different land uses](#) 

Author(s): Daniel Paredes; João Frederico Alves; Sara Mendes; José Miguel Costa; Joana Alves; António Alves da Silva; José Paulo Sousa

Published in: Journal of pest science, Issue 96, 2023, ISSN 1612-4758

Publisher: Springer Verlag

DOI: 10.1007/s10340-022-01489-1

[A soil fungus confers plant resistance against a phytophagous insect by disrupting the symbiotic role of its gut microbiota](#) 

Author(s): Di Lelio, Ilaria; Forni, Giobbe; Magoga, Giulia; Brunetti, Matteo; Bruno, Daniele; Becchimanzi, Andrea; De Luca, Maria G.; Sinno, Martina; Barra, Eleonora; Bonelli, Marco; Frusciante, Sarah; Diretto, Gianfranco; Digilio, Maria C.; Woo, Sheridan L.; Tettamanti, Gianluca; Rao, Rosa; Lorito, Matteo; Casartelli, Morena; Montagna, Matteo; Pennacchio, Francesco

Published in: PNAS, Issue 120(10), 2023, ISSN 0027-8424

Publisher: National Academy of Sciences

DOI: 10.1073/pnas.2216922120

Talking Different Languages: The Role of Plant-Plant Communication When an Invader Beats up a Strange Neighborhood

Author(s): Rea Maria Hall, Dimitrije Markovic, Hans-Peter Kaul, Helmut Wagentristl, Bernhard Urban, Nora Durec, Katharina Renner-Martin, and Velemir Ninkovic

Published in: Plants, 2023, ISSN 2223-7747

Publisher: MDPI

[Land-Use Effect on Olive Groves Pest Prays oleae and on Its Potential Biocontrol Agent Chrysoperla carnea](#)

Author(s): João Frederico Alves, Sara Mendes, António Alves da Silva, José Paulo Sousa, Daniel Paredes

Published in: Insects, Issue 12/1, 2021, Page(s) 46, ISSN 2075-4450

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)

DOI: 10.3390/insects12010046

[Evolution of an insect immune barrier through horizontal gene transfer mediated by a parasitic wasp](#)

Author(s): Ilaria Di Lelio, Anna Illiano, Federica Astarita, Luca Gianfranceschi, David Horner, Paola Varricchio, Angela Amoresano, Pietro Pucci, Francesco Pennacchio, Silvia Caccia

Published in: PLOS Genetics, Issue 15/3, 2019, Page(s) e1007998, ISSN 1553-7404

Publisher: Public Library of Science

DOI: 10.1371/journal.pgen.1007998

[Transcriptome and Metabolome Reprogramming in Tomato Plants by Trichoderma harzianum strain T22 Primes and Enhances Defense Responses Against Aphids](#)

Author(s): Mariangela Coppola, Gianfranco Diretto, Maria Cristina Digilio, Sheridan Lois Woo, Giovanni Giuliano, Donata Molisso, Francesco Pennacchio, Matteo Lorito, Rosa Rao

Published in: Frontiers in Physiology, Issue 10, 2019, ISSN 1664-042X

Publisher: Frontiers Research Foundation

DOI: 10.3389/fphys.2019.00745

[Enhancement of Bacillus thuringiensis toxicity by feeding Spodoptera littoralis larvae with bacteria expressing immune suppressive dsRNA](#)

Author(s): S. Caccia, F. Astarita, E. Barra, I. Di Lelio, P. Varricchio, F. Pennacchio

Published in: Journal of Pest Science, 2019, ISSN 1612-4758

Publisher: Springer Verlag

DOI: 10.1007/s10340-019-01140-6

[Trichoderma atroviride P1 Colonization of Tomato Plants Enhances Both Direct and Indirect Defense Barriers Against Insects](#)

Author(s): Mariangela Coppola, Pasquale Cascone, Ilaria Di Lelio, Sheridan Lois Woo, Matteo Lorito, Rosa Rao, Francesco Pennacchio, Emilio Guerrieri, Maria Cristina Digilio

Published in: Frontiers in Physiology, Issue 10, 2019, ISSN 1664-042X

Publisher: Frontiers Research Foundation

DOI: 10.3389/fphys.2019.00813

[Who is my neighbor? Volatile cues in plant interactions](#)

Author(s): Velemir Ninkovic, Merlin Rensing, Iris Dahlin, Dimitrije Markovic

Published in: Plant Signaling & Behavior, 2019, Page(s) 1-6, ISSN 1559-2324

Publisher: Taylor & Francis

DOI: 10.1080/15592324.2019.1634993

[Targeting the potassium ion channel genes SK and SH as a novel approach for control of insect pests: efficacy and biosafety](#)

Author(s): Baida Alshukri, Federica Astarita, Mushtaq Al-Esawy, Hesham Mohamed El Sayed Abd El Halim, Francesco Pennacchio, Angharad Margaret Roscoe Gatehouse, Martin Gethin Edwards

Published in: Pest Management Science, 2019, ISSN 1526-498X

Publisher: John Wiley & Sons Inc.

DOI: 10.1002/ps.5516

[Venomics of the ectoparasitoid wasp Bracon nigricans](#)

Author(s): Andrea Becchimanzi, Maddalena Avolio, Hamed Bostan, Chiara Colantuono, Flora Cozzolino, Donato Mancini, Maria Luisa Chiusano, Pietro Pucci, Silvia Caccia, Francesco Pennacchio

Published in: BMC Genomics, Issue 21/1, 2020, ISSN 1471-2164

Publisher: BioMed Central

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[Tomato Plants Treated with Systemin Peptide Show Enhanced Levels of Direct and Indirect Defense Associated with Increased Expression of Defense-Related Genes](#)

Author(s): Coppola, Lelio, Romanelli, Gualtieri, Molisso, Ruocco, Avitabile, Natale, Cascone, Guerrieri, Pennacchio, Rao

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Author(s): Vecchio, Riccardo; Caso, Gerarda; Luigi Cembalo,; Massimiliano, Borrello

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Author(s): Ingvar Sundh, Teresa Del Giudice, Luigi Cembalo

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[Appraisal of Combined Applications of Trichoderma virens and a Biopolymer-Based Biostimulant on Lettuce Agronomical, Physiological, and Qualitative Properties under Variable N Regimes](#) 

Author(s): Rouphael, Youssef; Carillo, Petronia; Colla, Giuseppe; Fiorentino, Nunzio; Sabatino, Leo; El-Nakhel, Christophe; Giordano, Maria; Pannico, Antonio; Cirillo, Valerio; Shabani, Edris; Cozzolino, Eugenio; Lombardi, Nadia; Napolitano, Mauro; Woo, Sheridan L.

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Author(s): Ortega-Ramos Patricia; Coston Duncan; Seimandi-Corda Gaëtan; Mauchline Alice; Cook Samantha
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[Bioformulations with Beneficial Microbial Consortia, a Bioactive Compound and Plant Biopolymers Modulate Sweet Basil Productivity, Photosynthetic Activity and Metabolites](#) 

Author(s): Ernesto Comite; Christophe El-Nakhel; Youssef Roupheal; Valeria Ventorino; Olimpia Pepe; Assunta Borzacchiello; Francesco Vinale; Francesco Vinale; Daniela Rigano; Alessia Staropoli; Alessia Staropoli; Matteo Lorito; Sheridan L. Woo; Sheridan L. Woo
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Using network ecology to understand and mitigate long-term insect declines

Author(s): Dimitrios Petsopoulos, David H. Lunt, James R. Bell, James J. N. Kitson, Larissa Collins, Neil Boonham, Ramiro Morales-Hojas, Darren M. Evans
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Author(s): Mičić, Gvozden Rokvić Knežić, Gordana Đurić, Gordana Marković, Dimitrije
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Author(s): Nadia Lombardi, Anna Maria Salzano, Antonio Dario Troise, Andrea Scaloni, Paola Vitaglione, Francesco Vinale, Roberta Marra, Simonetta Caira, Matteo Lorito, Giada d'Errico, Stefania Lanzuise, Sheridan Lois Woo
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Author(s): Elia Russo, Andrea Becchimanzi, Giulia Magoga, Matteo Montagna, Ilaria Di Lelio, Francesco Pennacchio
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Datasets

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[Intrinsically disordered Prosystemin discloses biologically active repeat motifs](#)

Author(s): Castaldi, Valeria; Langella, Emma; Buonanno, Martina; Di Lelio, Ilaria; Aprile, Anna Maria; Molisso, Donata; Criscuolo, Martina Chiara; D'Andrea, Luca Domenico; Romanelli, Alessandra; Amoresano, Angela; Pinto, Gabriella; Illiano, Anna; Chiaiese, Pasquale; Becchimanzi, Andrea; Pennacchio, Francesco; Rao, Rosa; Monti, Simona Maria

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Author(s): Molisso, Donata; Coppola, Mariangela; Buonanno, Martina; Di Lelio, Ilaria; Monti, Simona Maria; Melchiorre, Chiara; Amoresano, Angela; Corrado, Giandomenico; Delano-Frier, John Paul; Becchimanzi, Andrea; Pennacchio, Francesco; Rao, Rosa

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Author(s): Agnieszka Bednarska; Ryszard Laskowski; José Paulo Sousa

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[Temperature differentially influences the capacity of Trichoderma species to induce plant defense responses in tomato against insect pests](#)

Author(s): Ilaria Di Lelio; Mariangela Coppola; Ernesto Comite; Donata Molisso; Matteo Lorito; Sheridan Lois Woo; Francesco Pennacchio; Rosa Rao; Maria

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[Tomato Plants Treated with Systemin Peptide Show Enhanced Levels of Direct and Indirect Defense Associated with Increased Expression of Defense-Related Genes](#) 

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Author(s): Molisso, Donata; Coppola, Mariangela; Buonanno, Martina; Di Lelio, Ilaria; Aprile, Anna Maria; Langella, Emma; Rigano, Maria Manuela; Francesca, Silvana; Chiaiese, Pasquale; Palmieri, Gianna; Tatè, Rosarita; Sinno, Martina; Barra, Eleonora; Becchimanzi, Andrea; Monti, Simona Maria; Pennacchio, Francesco; Rao, Rosa

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[Combined Biostimulant Applications of *Trichoderma* spp. with Fatty Acid Mixtures Improve Biocontrol Activity, Horticultural Crop Yield and Nutritional Quality](#) 

Author(s): Lanzuise Stefania; Manganiello Gelsomina; Guastaferro Valentino Maria; Vincenzo Cono; Vitaglione Paola; Ferracane Rosalia; Vecchi Alfeo; Vinale Francesco; Kamau Solomon; Lorito Matteo; Woo Sherdan Lois

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Author(s): Ilaria Di Lelio; Mariangela Coppola; Ernesto Comite; Donata Molisso; Matteo Lorito; Sheridan Lois Woo; Francesco Pennacchio; Rosa Rao; Maria Cristina Digilio

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