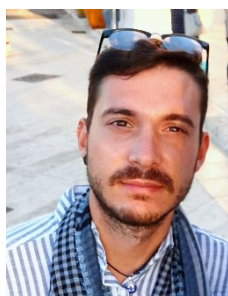


Personal Information

Luca Nerva



📍 Council for Agricultural Research and Economics

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🌐 <https://www.researchgate.net/profile/Luca-Nerva>

Working experience

07-2023 up to date

Senior Researcher

Council for Agricultural Research and Economics

I'm involved in the implementation of genome editing techniques in grapevine, specifically I'm focusing on the identification and characterization of genes involved in plant-microbe interactions (including both pathogenic and beneficial ones). I'm in charge of the microbial bank ViMed-Biomebank, devoted to the storage, preservation and exploitation of the microbial biodiversity associated to vineyards. I'm involved in several national and international project, including some EU funded proposal on the PRIMA program and the Horizon Europe program.

I'm an official member of the PhD program in Crop Science (University of Padua) and actually mentor of 3 PhD students and 4 Post-Doc.

From 05-2022 to 02-2024

Associate Professor

University of Ferrara

I have been selected as an expert among a public selection to teach important environmental themes such as sustainability and resilience. My expertise allows me to teach how to evaluate the environmental impact of different approaches as well as the economic and social outcomes of choosing different environmental respectful strategies in agriculture.

From 07-2017 to 07-2023

Researcher

Council for Agricultural Research and Economics

I started a brand-new line of research focusing on environmentally friendly alternatives in agriculture. In details, my work is oriented towards the development of microbial inocula to mitigate the human impact on the agroecosystem.

In parallel I participated in the coordination committee of several national and international founded project. I played pivotal role in writing and managing the projects learning how to deal with the European call for grants (both for public and private institution).

During these years I also co-led the scientific group composed by 3 PhD students and 2 post-Docs.

From 09-2018 to 2022

Assistant Professor

University of Padova

I focused my activities over the years to teach students the importance of sustainability and environmentally friendly alternatives to chemicals in agriculture. I also teach how to evaluate the environmental outcomes, the impact on biodiversity and the economic benefits

From 01-2017 to 07-2017

Term-contract scientist worker

CNR – Institute for Sustainable Plant Protection (CNR-IPSP)

I worked on the characterization of important plant pathogens to develop reliable detection systems in collaboration with private companies. In parallel I also participated to the preparation of national and international grant proposals.

From 02-2016 to 09-2016

Working student

University of California – Davis (UC-Davis), California (USA)

Ecological analyses on insect pests and fungal pathogens to identify reliable biocontrol methods. Bioinformatics analyses and molecular biology approaches applied to the characterization and development of viral symbionts. Cell culture and protoplasts production to study possible recombination and spill-over events occurring in nature between fungal and plant viruses and their hosts.

From 08-2013 to 03-2014

Term-contract worker

Ferrero SPA – Soremartec Italia Srl

Task manager for two Horizon2020 project granted by the European Union ("ITACA" e "ECOFOOD"). The objectives of the projects were the recycling of Ferrero SPA by-products to improve sustainability in the productions systems.

Training experiences

Dal 01-2014 al 12-2016

PhD in Biological Sciences and Applied Biotechnology

Excellent cum laude

University of Turin – School of Natural Sciences and Innovative Technologies

Title of the PhD thesis:

Searching for mycoviruses in a collection of marine fungi isolated from the seagrass *Posidonia oceanica*

Dal 09-2011 al 07-2013

Master degree in Plant Biology and Biotechnology

110 cum laude

University of Turin – Interfaculty School in Biotechnology

Application of laser microdissection microscopy to collect root cells and study the ecological interaction between orchids and mycorrhizal fungi.

Prizes

- 2021 Invited speaker on the application dsRNAs as sustainable plant protection technology at the American Society for Plant Biology Workshop, "The Biotechnology Of HIGS And SIGS For Pest and Pathogen Resistance: What Works, What Doesn't, What's New"
- 2020 Fellowship for the participation to the 4th iPLANTA Conference (COST action CA15223) and to present the work on the application of RNAi technology for plant protection purposes.
- 2019 Invited speaker by the Italian Embassy in South Africa for the workshop "South African & Italian Wine Research Innovations: Current Status & Future Prospects"
- 2018 Invited speaker for the Active Seminars On CRISPR-CAS9 by the PhD School in Agricultural Science and Biotechnology, University of Udine, Italy.
- 2018 Invited lecturer on 'New unconventional strategies for sustainable crop protection' within the course of Integrated Management Of Arthropod Pests Master Degree Program In Sustainable Agriculture, University of Padua, Italy.
- 2017 Fellowship to give a lecture at the Winter School on Applied Bioinformatics organized by the University of Verona, Italy
- 2017 Early Career Award at Microbe International Symposium (Vienna) by the Phytobiome alliance, Noble Research Institute - USA
- 2017 Luria Award by the Italian Society for Virology for the best presentation during the congress One Virology One Health, Milan, Italy

Editorial and Reviewer activities

- 2023 – Today Editor of BMC Plant Biology
- 2022 – Today Editor of the Nature-Springer book "Botrytis cinerea - Methods and Protocols"
- 2022 – Today Projects evaluators for the Jhon Templeton Foundation
- 2020 – 2021 Evaluators, Marie Skłodowska-Curie Actions - European Commission
- 2021 Regular FONDECYT National Projects Competition - Chile
- 2021 - Today Topic Editor of Frontiers in Virology – Frontiers, Switzerland
- 2021 - Today Guest Editor of Plant Stress – Elsevier, China
- 2020 - Today Topic Editor of Agronomy - MDPI, Switzerland
- 2020 Selected Guest Editor of Special Issue "Application of Nature-Based Molecules and/or Beneficial Microbes for an Environmentally Friendly Agriculture", Agronomy - MDPI
- 2020 Guest Editor of Special Issue "Advances in Grapevine Genotyping, Varietal Identification and Germplasm Collections", Plants - MDPI, Switzerland
- 2020 Guest Editor of Special Issue "Fungal Model Systems: What Can They Tell Us about the Biological Activity of Plant Extracts and Natural Compounds?", Plants - MDPI

Participation to Relevant National and International projects

<i>Project Title</i>	<i>Funder</i>	<i>Period</i>
Shield4Grape - Breeding And Integrated Pest Management Strategies To Reduce Reliance On Chemical Pesticides In Grapevine Project ID 101135088	European Union	02/2024 – 01/2027
Agritech National Research Center – PNRR SPOKE2	European Union Next-GenerationEU	09/2022 – 08/2025

Grape4vine - Recycling grape wastes to protect grapevine from fungal pathogens	Cariplo Foundation	05/2023 – 04/2026
ESCinterfere – Grapevine vaccination against esca disease Project ID 2105-0061-1463-2019	POR-FESR 2014-2020 Veneto region (Italy)	30/06/2020- 29/10/2021
BIOPROTECT - L'uva come modello per lo studio di antagonisti naturali contro il deterioramento microbiologico degli alimenti. Funding ID: 2020.0057 - 50448	Cariverona Foundation	31/03/2021 – 30/03/2023
REVINE Regenerative agricultural approaches to improve ecosystem services in Mediterranean vineyards Italian MUR DM n.1966/2021 Project ID 20114-2	H2020 - PRIMA	24/05/2021 - 23/05/2024
MicroBIO – Improving biodiversity and agricultural sustainability towards the application of regenerative approaches in vineyard agro-ecosystems Funding ID: 2021.0072 - 51886	Cariverona Foundation	2021-2024
DiBio-BIOPRIME Natural compounds and microorganisms for the defence and priming of Mediterranean biological crops Funding ID: C74I18003150001	Italian Ministry of Agriculture Food and Forestry (MIPAAF)	2019-2023
BIOTECH – VITECH New breeding techniques for the genetic, sustainability improvement of grapevine Biotechnologie applicate al miglioramento genetico della vite per incrementare sostenibilità e competitività della filiera Funding ID: C74I18003150001	Italian Ministry of Agriculture Food and Forestry (MIPAAF)	2017-2022
PRO-Forma Recognition and dissemination of defense strategies and innovative products aimed at reducing the use of pesticides in viticulture Funding ID: DGR 1510 – 10-11-2020	Veneto Region (Italy)	2021
NATURE - Gnotobiotic approach to unveil the role of the plant microbiome in the growth and in the stress tolerance Funding ID: PRIN 20172TZHYX	PRIN 2017 Italian Ministry of University and Research	28/08/2019- 28/02/2023
VITE 4.0 - New eco-friendly pest management strategies in viticulture Funding ID: C74I18003150001	Foundation Cassa di Risparmio di Cuneo	19/02/2019 - 31/12/2022

Participation to Scientific Society

2017 – today	Member, Research Network for science dissemination “ <i>Successione Ecologica</i> ”
2019 – today	Member, Italian Society for Plant Pathology (SIPAV), Italy
2016 – today	Member, American Society for Microbiology (ASM), USA
2019 – 2020	Member, Association of Applied Biology (AAB), UK
2021 – today	Member, American Society of Plant Biology

SCIENTIFIC PRODUCTION

Representative publications

Moffa, L., Mannino, G., Bevilacqua, I., Gambino, G., Perrone, I., Pagliarani, C., ... & Nerva, L. (2025). CRISPR/Cas9 - driven double modification of grapevine MLO6 - 7 imparts powdery mildew resistance, while editing of NPR3 augments powdery and downy mildew tolerance. *The Plant Journal*, 122(2), e17204.

Nerva, L., Gambino, G., Moffa, L., Spada, A., Falginella, L., De Luca, E., ... & Chitarra, W. (2024). Conjoined partners: efficacy and side effects of grafting and dsRNA application on the microbial endophyte population of grapevine plants inoculated with two esca-related fungal pathogens. *Journal of Experimental Botany*, erae461.

Gambino, G., Nuzzo, F., Moine, A., Chitarra, W., Pagliarani, C., Petrelli, A., ... Nerva, L. & Perrone, I. (2024). Genome editing of a recalcitrant wine grape genotype by lipofectamine - mediated delivery of CRISPR/Cas9 ribonucleoproteins to protoplasts. *The Plant Journal*, 119(1), 404-412.

Nerva, L., Dalla Costa, L., Ciacciulli, A., Sabbadini, S., Pavese, V., Dondini, L., ... & Liciardello, C. (2023). The role of Italy in the use of advanced plant genomic techniques on fruit trees: state of the art and future perspectives. *International Journal of Molecular Sciences*, 24(2), 977.

Nerva, L., Sandrini, M., Moffa L., Velasco, R., Balestrini, R., Chitarra, W. (2022). Breeding toward improved ecological plant-microbe interactions. *Trends in Plant Science*, 27: 1134-1143.

Sandrini, M., Moffa, L., Velasco, R., Balestrini, R., Chitarra, W., & Nerva, L. (2022). Microbe-assisted crop improvement: a sustainable weapon to restore holobiont functionality and resilience. *Horticulture Research*, 9: uhac160.

Giudice, G., Moffa L., Niero, M., Duso, C., Sandrini, M., Vazzoler, LF., Luison, M., Pasini, E., Chitarra, W., Nerva, L.* (2022). Novel sustainable strategies to control *Plasmopara viticola* in grapevine unveil new insights on priming responses and arthropods ecology. *Pest Management Science*, 78: 2342-2356. *Corresponding author

Nerva, L.*, J F Garcia, F Favaretto, G Giudice, L Moffa, M Sandrini, D Cantu, A Zanzotto, M Gardiman, R Velasco, G Gambino, W Chitarra (2022). The hidden world within plants: metatranscriptomics unveils the complexity of wood microbiomes, *Journal of Experimental Botany*, 73: 2682-2697. *Corresponding author

Nerva, L., Giudice, G., Quiroga, G., Belfiore, N., Lovat, L., Perria, R., ... & Chitarra, W. (2022). Mycorrhizal symbiosis balances rootstock-mediated growth-defence tradeoffs. *Biology and Fertility of Soils*, 58(1), 17-34.

Belfiore, N., Nerva, L., Fasolini, R., Gaiotti, F., Lovat, L., & Chitarra, W. (2021). Leaf gas exchange and abscisic acid in leaves of Glera grape variety during drought and recovery. *Theoretical and Experimental Plant Physiology*, 33(3), 261-270.

Nerva, L.*, Moffa, L., Giudice, G., Giorgianni, A., Tomasi, D., & Chitarra, W. (2021). Microscale analysis of soil characteristics and microbiomes reveals potential impacts on plants and fruit: vineyard as a model case study. *Plant and Soil*, 1-17. *Corresponding author

Balestrini, R., Brunetti, C., Chitarra, W., & Nerva, L. (2020). Photosynthetic Traits and Nitrogen Uptake in Crops: Which Is the Role of Arbuscular Mycorrhizal Fungi?. *Plants*, 9(9), 1105.

Nerva, L.*, Pagliarani, C., Pugliese, M., Monchiero, M., Gonthier, S., Gullino, M. L., ... & Chitarra, W. (2019). Grapevine Phyllosphere Community Analysis in Response to Elicitor Application against Powdery Mildew. *Microorganisms*, 7(12), 662. *Corresponding author

Nerva, L.*, Turina, M., Zanzotto, A., Gardiman, M., Gaiotti, F., Gambino, G., & Chitarra, W. (2019). Isolation, molecular characterization and virome analysis of culturable wood fungal endophytes in esca symptomatic and asymptomatic grapevine plants. *Environmental microbiology*, 21: 2886-2904. *Corresponding author

Nerva, L.*, Zanzotto, A., Gardiman, M., Gaiotti, F., & Chitarra, W. (2019). Soil microbiome analysis in an ESCA diseased vineyard. *Soil Biology and Biochemistry*, 135, 60-70. *Corresponding author.