

## Marco Esposito – *Curriculum vitae*



**Postdoctoral Associate at the Center of Plant Science at Sant'Anna School of Advanced Studies of Pisa, Italy**

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## CURRENT POSITIONS

- **November 01, 2023, to Present**  
Postdoctoral Associate at the Center of Plant Science at Sant'Anna School of Advanced Studies of Pisa, Italy (<https://www.santannapisa.it/it/marco-esposito>)
- **February 22, 2022, to Present**  
Postdoctoral Fellow at DiTommaso's Weed Ecology and Management Laboratory at Cornell University, Ithaca (NY) (<https://cals.cornell.edu/marco-esposito>)

## EDUCATION

- **May 19, 2023**  
Ph.D. in Sustainable Agricultural and Forestry Systems and Food Security at the Federico II University, Naples (Italy)  
Ph.D. thesis on *New Weed Management Approaches and Artificial Intelligence to Obtain Neutral Weed Communities*, final grade: A

*During my Ph.D. I was involved in a project aimed at identifying non-detrimental weed communities in wheat with the purpose of studying their morpho-physiological traits and their ecological interactions with the wheat. I worked in collaboration with engineers to train an artificial intelligence algorithm for weed species-specific identification. Furthermore, I also studied the morphophysiological adaptations of cauliflower (*Brassica oleracea* L. var. *botrytis* L.) and green beans (*Phaseolus vulgaris* L.) when interacting with weeds.*

- **February 22, 2022, to May 19, 2023**  
Visiting PhD student at DiTommaso's Weed Ecology and Management Laboratory at Cornell University, Ithaca (NY)

*As a Visiting Ph.D. student, I was involved in research activities to study the effect of different wildflower compositions on the corn agronomical parameters and the beneficial insects' dynamic. I was also involved in another research investigating the Johnsongrass population dynamic and winter survival in New York and its competition effects on corn productivity at different phenological stages and densities. Indeed, during my stay at Cornell, I deepened my knowledge of crop-weed interactions, weed ecology, ecological weed management, and cover crops through collaboration with the other members of the Agroecology Team.*

- **October 21, 2019**  
Master's degree in Agricultural Sciences and Technology, final grade: 110/110 with honors  
Department of Agricultural Science, Federico II University, Naples (Italy), Via Università 100, Portici (NA), Italy  
Thesis on *Physiological responses and tolerance genes analyses of six wild potato genotypes under salt stress.*

*My master's degree thesis focused on the identification of the most tolerant wild potato genotypes under salt stress compared to common potato (*Solanum tuberosum* var. *Desirée*). Physiological, agronomical, and tolerance gene expression analyses were performed at different phenological stages. The most tolerant species (*S. commersonii* and *S. multidissectum*) will be considered to improve the common potato genetically.*

- **January 11, 2018**  
Bachelor's degree in Agricultural, Forestry, and Environmental Sciences, final degree: 104/110  
Department of Agricultural Science, University of Napoli Federico II, Via Università 100, Portici (NA), Italy  
Thesis on *Chlorophyll Fluorescence: a wonderful tool to measure the physiology of plants.*

*My bachelor's degree thesis was based on extensive bibliographic research on plant chlorophyll fluorescence, the ways to measure it, and how it is linked with the physiological plant status.*

#### OTHER EDUCATION COURSES

- **February 1, 2019**  
Training path for the acquisition of 24 teaching credits  
*The course was focused on acquiring skills and abilities for the teaching activity. The course included four exams (psychology, cultural anthropology, experimental and educational pedagogy).*
- **February 13, 2017**  
EIPASS (European Informatics Passport)  
*I gained knowledge about Information Technology fundamentals, management of the basic Operative Systems, word processing, spreadsheets, structural data management, multimedia presentations, Internet and Networking.*
- **January 26, 2017**  
Certificate of Skill Lim  
*During the course, I was able to learn the hardware, software, and teaching tools for the Interactive Whiteboard (LIM) use.*
- **October 28, 2011**  
European Computer Driving Licence (ECDL) Certificate  
*Over the course, I learned how to use Microsoft Office software and the principal Internet functionalities.*
- **November 11, 2010**  
Training course for workers in hygiene-related activities of foods  
*During the course, I learned the principal activities and procedures to apply in order to preserve and guarantee optimal food hygiene.*
- **June 25, 2010**

Environmental operator

*I acquired knowledge of the management of green areas and related activities, such as agritourism and “green tourism,” enogastronomic tourism, anthropology, sociology, and psychology of tourism, and planning and management of green areas.*

- **August 2, 2009**

Course: English as a foreign language. Embassy CES, London Mile End (LON)

*The full immersion course in London was focused on maximizing our skills to communicate, read, write, and listen in English through frontal lessons and teaching activities in several places in London.*

- **April 10, 2008**

British Institute Certificate (A2)

*I learned to understand sentences and frequently used expressions and to communicate in simple and routine tasks requiring a simple and direct exchange of information in familiar and routine matters. I also learned to describe aspects of my background in simple terms.*

**PERSONAL  
SKILLS AND  
COMPETENCE**

**Laboratory**

- Mineral analysis acquisition through HPCL ionic exchange
- Plant molecular biology: DNA/RNA purification, PCR, RT-PCR, qRT-PCR, primer
- Plant tissue culture

**Fieldwork**

- Plant management under greenhouse and open field conditions
- Soil and hydroponic management of plants under different stress conditions
- Plant physiology and biometrics data collection (water potential, gas exchange, chlorophyll fluorescence, SPAD, leaf mass per area, relative water content, stomata analysis)

**Software**

- Microsoft Office
- Scientific Data Analysis and Graphing: SPSS (IBM), SigmaPlot, Image Analysis: ImageJ

**MOTHER  
TONGUE**

- Italian

**OTHER  
LANGUAGE**

- English (Upper intermediate)

**SCIENTIFIC  
PUBLICATIONS**

- **Esposito, M.,** Westbrook, A., Maggio, A., Cirillo, V., & DiTommaso, A. (2023). Neutral weed communities: The intersection between crop productivity, biodiversity, and weed ecosystem services. *Weed Science*, 1-30. doi:10.1017/wsc.2023.27
- **Esposito, M.,** Cirillo, V., De Vita, P., Cozzolino, E., & Maggio, A. (2023). Soil nutrition management may preserve non-detrimental weed communities in rainfed winter wheat (*T. aestivum*). *Agriculture, Ecosystems & Environment*, 355, 108596.
- Russo C., Cirillo V., **Esposito M.,** Lentini M., Pollaro C., Maggio A. Application of Convolutional Neural Network for early stage weed scouting to forecast yield losses in tender wheat (*Triticum aestivum*) (*Submitted, Information Processing in Agriculture*)

- Valerio C., **Esposito M.**, Lentini M., and Maggio A. Morpho-physiological adaptations to weed competition impair green bean ability to overcome moderate salt stress (*Under review*, Journal of Agronomy and Crop Science)
- **Esposito, M.**, Crimaldi, M., Cirillo, V., Sarghini, F., and Maggio, A. (2021). Drone and sensor technology for sustainable weed management: a review. *Chemical and Biological Technologies in Agriculture*, 8(1), 1-11.
- De Pascale, S., Roupheal, Y., Cirillo, V., **Esposito, M.**, Maggio, A. (2021, September). Modular systems to foster circular economy in agriculture. In VIII South-Eastern Europe Symposium on Vegetables and Potatoes 1320 (pp. 205-210).
- Cirillo, V., D'Amelia, V., **Esposito, M.**, Amitrano, C., Carillo, P., Carputo, D., Maggio, A. (2021). Anthocyanins Are Key Regulators of Drought Stress Tolerance in Tobacco. *Biology*, 10(2), 139.
- Di Stasio, E., Cirillo, V., Raimondi, G., Giordano, M., **Esposito, M.**, Maggio, A. (2020). Osmo-priming with seaweed extracts enhances the yield of salt-stressed tomato plants. *Agronomy*, 10(10), 1559.

**NATIONAL AND  
INTERNATIONAL  
CONFERENCES**

- **Weed Science Society of America & Northeastern Weed Science Society  
Arlington (VA), USA. January 30 – February 2, 2023**  
**Esposito, M.\***, Cirillo V., Maggio A., DiTommaso A. Neutral weed communities: The junction point between Crop Productivity, Biodiversity, and Ecosystem services  
**\* Speaker**
- **XVII. Congress of the European Society for Agronomy  
Potsdam, Germany. August 29 - September 02, 2022**  
Cirillo V., **Esposito M.**, Lentini M., Russo C., Maggio A. The effect of different weed communities on the growth and yield of tender wheat.  
**(Poster presentation)**
- **Proceedings of the 51st National Conference of the Italian Society for Agronomy,  
Agriculture, and Food Availability in 2050  
University of Padova (Italy). 19 - 21 September 2022**  
Cirillo V., **Esposito M.**, Lentini M., Russo C., Maggio A. The Effect of Different Weed Communities on Growth and Yield of Tender Wheat (*T. aestivum*): An Eco-Physiological Perspective  
**(Poster presentation)**
- **Italian Society for Agronomy (SIA) “Sustainable management of cropping  
systems”  
Bari(BA), Italy. 16-18 September 2020**
  - **Esposito, M.**, Cirillo, V., Crimaldi, M., Sarghini, F., & Maggio, A. Sustainable WeedManagement: Modern Approaches and New Perspectives  
**(Poster presentation)**

- Cirillo V., D'Amelia V., **Esposito M.**, Chiaiese P., Conti S., Carputo D., Maggio A. Anthocyanins accumulation enhances drought tolerance in tobacco  
**(Poster presentation)**
  
- **Italian Society of Agricultural Genetics (SIGA), Young Web Meeting 7 July 2020**
  - Molisso D., Lentini M., Natale R., Cirillo V., **Esposito M.**, Maggio A., Rao R. Tomato systemin: a potential link between biotic and abiotic stresses  
**(Poster presentation)**
  
  - Cirillo V., D'Amelia V., **Esposito, M.**, Chiaiese P., Conti S., Carputo D., Maggio A. Anthocyanins, plant fancy inducers of resilience  
**(Poster presentation)**
  
- **Italian Society of Agricultural Genetics (SIGA), Web Symposium on Plant Health with a YoungScientist, Web Workshop 16 December 2020**

Cirillo V., D'Amelia V., **Esposito M.**, Chiaiese P., Carputo D., Maggio A. Anthocyanins over-accumulation increases tobacco drought stress tolerance via leaf morphological and metabolic changes  
**(Poster presentation)**