

Dr. Pietro Goglio

Senior Researcher

Date of birth: 24 June 1985

Nationality: Italian

Marital status: Married

Key Experience:

As a Senior Researcher in environmental and cropping systems assessment I have been directing my research towards the evaluation of cropping, agricultural, bioenergy, food and waste systems. I have carried out research mainly in the assessment of negative emission systems, agricultural and bioenergy systems. Currently I am focusing my research on developing approaches to combine science with LCA approaches to greenhouse gas removal from the atmosphere, biodiversity, circular economy for cropping, feed and livestock systems. These research developments aim to better capture the characteristics of the systems by considering technology implementation and innovation, including agroecological solutions. To this end, I am dedicated to encouraging and promoting awareness on the importance of scientific research towards sustainability, especially with regards to climate change mitigation, biodiversity and ecosystem services through scientific development and technology transfer projects in partnership with international centres of excellence.

Fluent in at least three languages English, French and Italian and with a basic knowledge of Dutch (A2), I possess excellent interpersonal, oral and written communication skills. This allows me to ensure proper interpretation and plain language explanation of scientific research to various echelons of audiences. A team player with the ability to work independently demonstrating responsibility and ability to multi-task while prioritizing and completing projects on time for review and publication.

I have maintained a strong track record in publications (i-10=18, h-factor=17) in several peer reviewed journals related to agriculture, bioenergy, climate change mitigation, e.g. Journal of Cleaner Production, Animal Frontiers and International Journal of Life Cycle assessment, Nature scientific reports and have substantial experience with acquisition of research funding and model analysis. I obtained £945000 in funding (~1.10 million €) to investigate methodologies for greenhouse gas removal; >1 Million € as Wageningen University and Research Leader to carry out an environmental assessment, develop methodology to account for biodiversity of livestock systems, livestock related cropping and grassland systems in Europe. Further grants as Wageningen University and Research Leader: >1M€ to assess future livestock systems in Europe; 70000€ to carry out an environmental assessment of mixed systems, 160000€ to carry out an environmental and social life cycle assessment of mushroom systems and €39000 for the environmental assessment of cocoa plantation in Cameroun. I am a Fellow of the UK Higher Education Academy, Academic Editor of PLoS Climate and a Guest Editor for a Special Volume in Bioeconomy of the Journal of Cleaner Production. Since 2021, I am member of the technical advisory board of the product environmental footprint initiative organized by the European Commission. Since 2023, I am member of the Italian Society of Agronomy.

Employment:

<i>Senior Researcher</i> Department of Agricultural, Food and Environmental Sciences University of Perugia Italy	Aug. 2022-Present
<i>Senior Researcher</i> Wageningen Economic Research Wageningen University & Research Wageningen, Netherlands	Nov. 2018- Aug. 2022
<i>Lecturer in LCA and Systems Modelling</i> School of Energy, Environment and Agrifood, Cranfield University, Bedfordshire, United Kingdom	Nov. 2015 – Oct. 2018
<i>Visiting Fellow</i> Eastern Cereal and Oilseed Research Centre of Agriculture and Agri-Food Canada (Canadian Ministry of Agriculture), Ottawa, Canada	Nov. 2013 - Nov. 2015
<i>Contractor</i> INRA-AgroParisTech Research Unit Environment and Arable Crops in Grignon (France)	Jan. 2013 - Feb. 2013
<i>Internship</i> Department of Biosystems Engineering, School of Agriculture, Food and Veterinary Medicine, University College Dublin, Dublin (Ireland)	Aug. 2008

Education:

Fellow of the Higher Education Academy (FHEA)	2018
Associate Fellow of the Higher Education Academy (AFHEA)	2017
PhD (Agriculture, Biology, Food, Environment and Health) Scuola Superiore Sant'Anna, Pisa, (Italy); Agro Paris Tech, Paris, (France)	2010 - 2013
MD, Scuola Superiore Sant'Anna MD Scuola Superiore Sant'Anna, Pisa, (Italy)	2008 - 2010
MD, Sciences of Plant Production and Protection University of Pisa, Pisa, (Italy)	2007 - 2009
BSc, Scuola Superiore Sant'Anna BSc Scuola Superiore Sant'Anna, Pisa, (Italy)	2004 - 2008

Bibliographic data: h-factor = 17, i-10 index = 18 (Google Scholar), 5-year citations: 1518

On-going projects:

- **PATHWAYS** (>1M€) Research Institute Leader. The project is a Horizon 2020 which aims to inform policy, research and business strategies in support of a transition to more sustainable livestock production and consumption.
- **FutureEUAqua** Assessing EU aquaculture (€150000) Partner. This project is an Horizon 2020 project and aims at assessing technologies and market for fish farming.
- **Agromix** Assessing the impact of mixed systems (livestock-crop-forestry) systems (€70000) Research Institute leader. This project is an horizon 2020 project and aims at assessing the impact of the introduction of mixed systems.
- **BIOCHAMP** (160000€) Research Institute Leader. Biostimulant alternative casing for sustainable and profitable mushroom industry. This project is Horizon 2020 which aims at developing new microbiota enhance casing for growth medium of mushroom systems.

Past projects:

- Soils-R-GGREAT (Soils Research to deliver Greenhouse Gas REmovals and Abatement Technologies) (Soils-R-GGREAT) work package leader for a total amount £645000. The project aims to assess the potential of soil greenhouse gas removal technologies.
- UPGreenLCA UPGreenLCA Harmonising and UPgrading GREENhouse gas removal (GGR) consequential Life Cycle Assessment (£300000). PI. The overall aim of this project is to harmonise the various LCA approaches to assess GGRT and improve currently available LCA methodology to assess GGRT by integrating social and political drivers.
- AVC4D Cocoa Cameroun Analysis of Value Chain for Development for Cocoa in Cameroun (€39000) WP leader. The project consists in assessing the economic, environmental and social impacts of cocoa production systems in Cameroon.
- Future implications of trends in healthy eating on existing food production and manufacture - FO0427. (£215,364). The project was funded by DEFRA (Department of Environment Food and Rural Affairs) (Partner). In this project the environment impact of future UK diet was assessed.
- NEXUS assessment (€28000) (Partner). Funded through the Ministry of Economic Affairs. This project aimed at reviewing current NEXUS assessment methodologies.
- Techno-environmental assessment of tea waste management (£9000) (PI). This project was funded by Unilever (Confidential).
- Environmental assessment of Mercon Coffee Activities (€34500). This project was funded by Mercon coffee (Confidential).

Grants and scholarships:

- NSERC (*Natural Sciences and Engineering Research Council of Canada*) visiting fellowship holder 2013-2014
- INRA-MinesParisTech PhD scholarship holder 2010-2012
- UIF (French-Italian University) scholarship winner 2010

Post-Doc and PhD supervision:

- Khaled Abdou (2018-2019). Post-Doctoral Research fellow in LCA of Approaches to Greenhouse Gas Removal from the Atmosphere. Project funded by Natural Environment Research Council (NERC).
- Michele Seghetta (2018- Feb 2019) Post-Doctoral Research fellow in LCA and soil C. Project funded by the Natural Environment Research council (NERC)
- David Lefebvre (2018-2021). PhD in Life Cycle Assessment of Soil Management to fight climate change. Project funded by the Natural Environment Research Council (NERC).
- Simone Pelaracci (2023-current) PhD in Environmental assessment of crop-livestock interactions through agricultural life cycle assessment and modelling. Project funded through the PATHWAYS project (Grant Agreement n.: 101000395).

Teaching:

- 2023 Horticultural crop lectures in the Advanced Herbaceous crops module of the MD in Advance Food Biotechnology.
- 2023 Flower crop cultivation lectures in Crop science module of the BAgSc degree.
- 2023 PhD course in LCA of agriculture systems for the PhD programme of the University of Perugia in Agricultural, Food and Environmental Sciences and Biotechnologies.
- 2021-current Mentorship of Jan Weik, PhD student under Prof. Iris Lewandowski's supervision. The PhD is focused on the automation of agricultural LCA and is building his research in parts on your previous work, in particular the consideration of crop interactions in LCA and the tool Crop.LCA.
- 2018-2020 Environmental assessment of agri-food chains (1 day module) Invited lecture module by the Université of La Salle in Beauvais in France as part of the Agricultural Science Master degree.
- 2017-2018 Evaluating Sustainability through Life Cycle Approaches. Module convener (responsible for organising, delivery and assessment of the module). The module was offered to Master student with a wide range of backgrounds (i.e., engineering, business, Environmental Science) as part of the Environmental Management for Business, Environmental Engineering and Advanced Chemical Engineering MD courses offered by Cranfield university.
- 2013 "Bioenergies" to Scientific High School students at the IIS "A. Moro", Rivarolo C. se (TO), Italy. The aim was to introduce students to the basic concepts related to bioenergy in terms of agricultural production, transformation pathways and environmental assessment. In the course, current challenges related to bioenergy were extensively described
- 2010-2012 Practical course on "Cropping system design" given to PhD students. This course was part of the Climate KIC summer school activities organised by AgroParisTech in collaboration with Ecole Polytechnique, Zurich ETH and the London School of Economics. In the course main mitigation options for agricultural GHG emissions were described.
- 2012 "CERES application: Field case studies to estimate N₂O emissions from cropping systems within the LCA context" course given to researchers, laboratory technicians, PhD students. The objective was to describe how to use the CERES model to estimate N₂O emissions and the issues related to model use in cropping system assessment.
- 2011 "Environmental assessments, LCA, Bioenergy production chains assessment" Course given to MD students in AgroParisTech. The aim was to describe the methods available for environmental assessment of bioenergy systems and the differences between agricultural systems and industrial systems with regards to environmental assessment.
- 2011 Field course on "Cropping system design" to high school teachers in earth and life sciences of the Versailles department. During this course, the approach used to design cropping systems with the aim of reducing environmental impacts related to the crop management was described.

2006 "Evaluation of agronomic and environmental parameters of the agroenergetic chains", seminar given within Scuola Superiore Sant'Anna to Professors, researchers, MD and BAgrSc students. The aim of the seminar: compare environmental performance of different bioenergy crops for the Mediterranean region.

Peer-reviewed publications:

- Goglio, P., Knudsen, M.T., Van Mierlo, K., Röhrig, N., Fossey, M., Maresca, A., Hashemi, F., Waqas, M.A., Yngvesson, J., Nassy, G., Broekema, R., Moakes, S., Pfeifer, C., Borek, R., Yanez-Ruiz, D., Cascante, M.Q., Syp, A., Zylowsky, T., Romero-Huelva, M., Smith, L.G., 2023. Defining common criteria for harmonizing life cycle assessments of livestock systems. *Cleaner Production Letters* 4, 100035. doi: 10.1016/j.clpl.2023.100035
- Goglio, P., Van Den Burg, S., Kousoulaki, K., Skirtun, M., Espmark, Å.M., Kettunen, A.H., Abbink, W., 2022. The Environmental Impact of Partial Substitution of Fish-Based Feed with Algae- and Insect-Based Feed in Salmon Farming. *Sustainability* 14. doi: 10.3390/su141912650
- Helmes, R.J.K., Goglio, P., Salomoni, S., van Es, D.S., Vural Gursel, I., Aramyan, L., 2022. Environmental Impacts of End-of-Life Options of Biobased and Fossil-Based Polyethylene Terephthalate and High-Density Polyethylene Packaging. *Sustainability* 14. doi: 10.3390/su141811550
- Lefebvre, D., Williams, A., Kirk, G. J. D., Meersmans, J., Sohi, S., Goglio, P., & Smith, P. 2021. An anticipatory life cycle assessment of the use of biochar from sugarcane residues as a greenhouse gas removal technology. *J. Clean. Prod.*, 127764.
- Lefebvre, D., Williams, A., Meersmans, J., Kirk, G.J.D., Sohi, S., Goglio, P., Smith, P., 2020. Modelling the potential for soil carbon sequestration using biochar from sugarcane residues in Brazil. *Sci Rep* 10, 19479. <https://doi.org/10.1038/s41598-020-76470-y>
- Goglio, P., Williams, A., Balta-Ozkan, N., Harris, N.R.P., Williamson, P., Huisingh, D., Zhang, Z., Tavoni, M., 2019. Advances and challenges of Life Cycle Assessment (LCA) of Greenhouse Gas Removal Technologies to Fight Climate Changes. *J. Clean. Prod.* 118896. <https://doi.org/10.1016/j.jclepro.2019.118896>
- Lefebvre, D., Goglio, P., Williams, A., Manning, D.A.C., de Azevedo, A.C., Bergmann, M., Meersmans, J., Smith, P., 2019. Assessing the potential of soil carbonation and enhanced weathering through Life Cycle Assessment: A case study for Sao Paulo State, Brazil. *Journal of Cleaner Production* 233, 468–481. doi: 10.1016/j.jclepro.2019.06.099
- Grossi, G., Goglio, P., Vitali, A., Williams, A.G., 2019. Livestock and climate change: impact of livestock on climate and mitigation strategies. *Anim. Frontiers* 9, 69–76. <https://doi.org/10.1093/af/vfy034>
- Ingrao, C., Bacenetti, J., Bezama, A., Blok, V., Goglio, P., Koukios, E.G., Lindner, M., Nemecek, T., Siracusa, V., Zabaniotou, A., Huisingh, D., 2018. The potential roles of bio-economy in the transition to equitable, sustainable, post fossil-carbon societies: Findings from this virtual special issue. *Journal of Cleaner Production* 204, 471–488. <https://doi.org/10.1016/j.jclepro.2018.09.068>
- Goglio, P., Smith, W.N., Grant, B.B., Desjardins, R.L., Gao, X., Hanis, K., Tenuta, M., Campbell, C.A., McConkey, B.G., Nemecek, T., Burgess, P.J., Williams, A.G., 2018a. A comparison of methods to quantify greenhouse gas emissions of cropping systems in LCA. *J. Clean. Prod.* 172. <https://doi.org/10.1016/j.jclepro.2017.03.133>
- Goglio, P., Smith, W.N., Worth, D.E., Grant, B.B., Desjardins, R.L., Chen, W., Tenuta, M., McConkey, B.G., Williams, A., Burgess, P., 2018b. Development of Crop.LCA, an adaptable screening life cycle assessment tool for agricultural systems: A Canadian scenario assessment. *J. Clean. Prod.* <https://doi.org/10.1016/j.jclepro.2017.06.175>

- Goglio, P., Brankatschk, G., Knudsen, M.T., Williams, A.G., Nemecek, T., 2017. Addressing crop interactions within cropping systems in LCA. *Int. J. Life Cycle Assess.* 1–9. <https://doi.org/10.1007/s11367-017-1393-9>
- Ingrao, C., Bacenetti, J., Bezama, A., Blok, V., Geldermann, J., Goglio, P., Koukios, E.G., Lindner, M., Nemecek, T., Siracusa, V., Zabaniotou, A., Huisingh, D., 2016. Agricultural and forest biomass for food, materials and energy: bio-economy as the cornerstone to cleaner production and more sustainable consumption patterns for accelerating the transition towards equitable, sustainable, post fossil-carbon societies. *Journal of Cleaner Production* 117, 4–6. <https://doi.org/10.1016/j.jclepro.2015.12.066>
- Goglio, P., Smith, W.N., Grant, B.B., Desjardins, R.L., McConkey, B.G., Campbell, C.A., Nemecek, T., 2015. Accounting for soil carbon changes in agricultural life cycle assessment (LCA): a review. *J. Clean. Prod.* 104, 23–39. <https://doi.org/10.1016/j.jclepro.2015.05.040>
- Uzoma, K.C., Smith, W., Grant, B., Desjardins, R.L., Gao, X., Hanis, K., Tenuta, M., Goglio, P., Li, C., 2015. Assessing the effects of agricultural management on nitrous oxide emissions using flux measurements and the DNDC model. *Agric. Ecosyst. Environ.* 206, 71–83. <https://doi.org/10.1016/j.agee.2015.03.014>
- Goglio, P., Grant, B.B., Smith, W.N., Desjardins, R.L., Worth, D.E., Zentner, R., Malhi, S.S., 2014. Impact of management strategies on the global warming potential at the cropping system level. *Sci. Tot. Environ.* 490, 921–933. <https://doi.org/10.1016/j.scitotenv.2014.05.070>
- Goglio, P., Colnenne-David, C., Laville, P., Doré, T., Gabrielle, B., 2013. 29% N₂O emission reduction from a modelled low-greenhouse gas cropping system during 2009–2011. *Environmental Chemistry Letters* 11, 143–149. <https://doi.org/10.1007/s10311-012-0389-8>
- Goglio, P., Bonari, E., Mazzoncini, M., 2012. LCA of cropping systems with different external input levels for energetic purposes. *Biomass Bioenerg.* 42, 33–42. <https://doi.org/10.1016/j.biombioe.2012.03.021>
- Goglio, P., Owende, P.M.O., 2009. A screening LCA of short rotation coppice willow (*Salix* sp.) feedstock production system for small-scale electricity generation. *Biosyst. Eng.* 103, 389–394. <https://doi.org/10.1016/j.biosystemseng.2009.03.003>

Grants and scholarships:

- NSERC (*Natural Sciences and Engineering Research Council of Canada*) visiting fellowship holder 2013-2014
- INRA-MinesParisTech PhD scholarship holder 2010-2012
- UIF (French-Italian University) scholarship winner 2010

Peer-reviewed full papers:

- Goglio, P., Williams, A., Macleod, M., Sohi, S., Rees, R., Moran, D., Wollenberg, L., Seghettta, M., Hillier, J., Smith, P., 2018. A methodological approach to carry out consequential life cycle assessment of greenhouse gas removal by agricultural soils. In: *Proceeding of 11th LCAfood conference (LCAFood 2018)*, Bangkok, Thailand.
- Goglio, P., Smith, W., Grant, B., Desjardins, R., Gao, X., Hanis, K., Tenuta, M., Campbell, C., McConkey, B., Nemecek, T., 2016. Methods to quantify GHG emissions to assess sustainability of cropping systems: a LCA perspective. In: *Proceedings of the 10th International Conference LCAfood 2016 (LCA-Food 2016) conference*, Dublin, Ireland.
- Goglio, P., Gabrielle, B., Colnenne-David, C., Laville, P., Doré, T., Desjardins, R.L., 2014. Assessing GHG mitigation options for crops at regional level using eco-system modelling and LCA. In: *Proceedings of the 9th International Conference LCA of Food 2014 (LCAfood2014)*, San Francisco, USA.

Goglio, P., Colnenne-David, C., Di Bene, C., Bosco, S., Laville, P., Roche, R., Ragaglini, G., Doré, T., Mazzoncini, M., Gabrielle, B., Bonari, E., 2012. Soil, climate and cropping system effects on N₂O accounting in the LCA of faba bean and cereals. In: Proceedings of the 8th International Conference on Life Cycle Assessment in the Agri-Food Sector (LCAFood 2012), Rennes, France.

Scientific reports:

Goglio, P., 2020. Environmental footprint of tulip bulbs Environmental footprint of tulip bulbs: Summary of the representative product study. Wageningen University and Research, Wageningen, The Netherlands.

Helmes, R., Goglio, P., Van Der Linden, R., 2020a. Environmental footprint of roses Environmental footprint of roses: Summary of the representative product study. Wageningen University and Research, Wageningen, The Netherlands.

Helmes, R., Ponsioen, T., Blonk, H., Vieira, M., Goglio, P., van der Linden, R., Gual Rojas, P., Kan, D., Verweij-Novikova, I., 2020. Hortifootprint Category Rules : Towards a PEFCR for horticultural products. Wageningen Economic Research, Wageningen. doi: 10.18174/526452

Lescuyer, G., Bassanaga, S., Boutinot, L., Goglio, P., 2019. Analyse de la chaîne de valeur du cacao au Cameroun. Rapport pour l'Union Européenne, DG-DEVCO. Value Chain Analysis for Development project.

Invited oral communications:

Goglio, P., Trydeman Knudsen, M., Van Mierlo, K., Röhrig, N., Fossey, M., Maresca, A., Hashemi, F., Waqas, M.A., Yingvesson, J., Nassy, G., Broekema, R., Moakes, S., Pfeifer, C., Borek, R., Yanez-Ruiz, D., Quevedo Cascante, M., Syp, A., Zylowsky, T., Romero-Huelva, M., Smith, L.G., 2023. Creating a Shared Framework for Standardizing Life Cycle Assessments in Livestock Production Systems. Book of Abstracts of the European Federation of Animal Science Conference.

Chowdhury, J.I., Balta-Ozkan, N., Goglio, P., Hu, Y., Varga, L., McCabe, L., 2018. Potentials of load-shifting with renewable energy storage: An environmental and economic assessment for the UK. Proceeding of the USAEE (United States Association of Energy Economics) conference.

Goglio, P., Williams, A., Macleod, M., Sohi, S., Rees, R., Moran, D., Wollenberg, L., Seghetta, M., Hillier, J., Smith, P., 2018. A methodological approach to carry out consequential life cycle assessment of greenhouse gas removal by agricultural soils. In Proceeding of 11th LCA-Food 2018 conference, Bangkok, Thailand.

Goglio, P., Smith, W., Grant, B., Desjardins, R., Gao, X., Hanis, K., Tenuta, M., Campbell, C., McConkey, B., Nemecek, T., 2016. Methods to quantify GHG emissions to assess sustainability of cropping systems: a LCA perspective, in: Proceedings of the 10th International Conference LCA of Food 2016. In Proceeding of the 10th LCA-Food 2016 conference, Dublin.

Goglio, P., 2016. Accounting for greenhouse gas (GHG) emissions in life cycle assessment (LCA) of cropping systems. Presented at the Sustainability for Green Economy, Cranfield, UK.

Goglio, P., Gabrielle, B., Colnenne-David, C., Laville, P., Doré, T., Desjardins, R.L., 2014. Assessing GHG mitigation options for crops at regional level using eco-system modelling and LCA. In: Proceedings of the 9th International Conference LCA of Food 2014. Presented at the LCAfood2014, San Francisco.

Goglio, P., Colnenne-David, C., Di Bene, C., Bosco, S., Laville, P., Roche, R., Ragaglini, G., Doré, T., Mazzoncini, M., Gabrielle, B., Bonari, E., 2012. Soil, climate and cropping system effects on N₂O accounting in the LCA of faba bean and cereals, in: Proceedings of the 8th LCAFood conference, Rennes, France.

Goglio, P., Colnenne-David, C., Roche, R., Doré, T., Gabrielle, B., 2012. Contribution analysis of reactive Nitrogen to N fertiliser application impacts in two different cropping system managements, in: Proceedings of ESA 2012 Conference. Helsinki.