

CURRICULUM VITAE ABREVIADO (CVA)**Part A. PERSONAL INFORMATION**

First name	Alberto		
Family name	Sanz Cobeña		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)			

(*) Mandatory

A.1. Current position

Position	Full Professor /Catedrático de Universidad		
Initial date	14/04/2024		
Institution	Universidad Politécnica de Madrid		
Department/Center	Chemistry and Food Technology		
Country	Spain	Teleph. number	
Key words	Agriculture, Nitrogen, GHG emissions, mitigation, ammonia emissions		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2006-2007	Predoctoral Scholarship/Consejo Superior de Investigaciones Científicas/Spain
2007-2010	Universidad Politécnica de Madrid/PhD student
2011-2016	Universidad Politécnica de Madrid/Assistant Professor
2016-2021	Universidad Politécnica de Madrid/ Associate Professor (Profesor Contratado)
2021-2024	Universidad Politécnica de Madrid/Associate Professor (Profesor titular)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Graduated in Environmental Sciences	Universidad Autónoma de Madrid	2006
PhD Agro-environmental Technology	Universidad Politécnica de Madrid	2010

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Full Professor (Catedrático de Universidad, April 2024). In my scientific career, I have tried to get an **integrated vision of the complex problem of GHG and reactive N mitigation from agroecosystems under Mediterranean conditions**, with a focus on **ammonia (NH₃) volatilization**, aiming to have an integrated approach considering (e.g.) implications on crop yields. While maintaining the generation of high-quality empirical data at the farm scale as a core of my research, I have also led studies focusing on the regional, watershed, national and European scales. **In the last 10 years**, this work has been sustained in my participation in **14 competitive research projects** at regional, national and EU level, as well as in **13 research contracts** with national and international companies in the agrifood sector (PI in 6 of them). **Since 2020, I have been the PI of three competitive projects** (total budget c. 2.5 Meur) aiming to **assess crop management practices leading to lower agro-environmental impacts** by actively involving the main actors in the process of advancing towards more sustainable cropping systems. I highlight here the EU project AgroGreen-SUDOE (SOE4/P5/E1059, 2020-23) (IP) and the Spanish Research Agency “Retos” Project (PID2019-107972RB-I00, 2020-23) (co-IP) which have led to the development of **visualization tools**, devoted to interested actors, to show impacts of crop management practices as well as a **nutrient calculator** focused on the work of farmers for optimized fertilization. In the field of **quantification and mitigation of N₂O and NH₃ emissions**, my work within

the COAPA group (UPM) has been **pioneer in the use of micrometeorological techniques in crops under Mediterranean conditions**. The transfer of knowledge in this field has occurred to private and public entities. For example, the ongoing collaboration with CITA (Aragon), in the framework of LIFE projects Arimeda and CLINMED-FARM, has led to the co-direction of an ongoing PhD thesis. This experience in the field of NH₃ emissions quantification in agricultural soils also led me to be one of the promoting researchers of the Network of Excellence Red NUEVA (AGL2017-90924-REDT). My research activity through international projects and research stays has woven a **dense international research network** with groups from USA, UK, France, Kenya, Costa Rica, Brazil, Ethiopia, Germany, the Netherlands, Denmark and China. I carried out **postdoctoral research stays** (12 months) in prestigious research centers (Wageningen University, the Netherlands; the International Livestock Research Center, Kenya; Pierre et Marie Curie University, France and Aarhus University, Denmark). As a result, I have produced **70 contributions in JCR journals** (63 Q1 and 7 Q2), 13 of them as first author (5 of them with more than 100 citations) and 8 as a senior one. My h index in WoS is 30. Citations (without self-citation) are 3089 (WoS, 23-01-24). I have participated in 12 book chapters. I was Guest Editor of a Special Issue in AGEE (2017, Q1) and one in Pedosphere (2021, Q1). I have been included in the "[World's Top 2% Scientist List](#)" **2022 and 2023 Editions** based on citations received during 2021 and 2022 and performed by Stanford University. I am a regular reviewer of high-impact international journals. In the last 10 years, I have had a regular participation in national and **international conferences** (25 out of 54) through oral communications (16) and posters. I have organized 5 international workshops, being a member of the scientific committee of 11. I have an active involvement in relevant **international initiatives** such as the Global Research Alliance for GHG mitigation in agriculture, the **IAEA-FAO** working group on GHG mitigation in agricultural systems, the global initiative "INMS: Towards the Establishment of an International N Management System". I am currently **coordinating the Experts Group for the revision of the NH₃ Mitigation Guidance Document of the Task Force on Reactive N of UNECE**, being Lead Author of the 1st Assessment by the Mediterranean Experts on Climate and Environmental Change ([MedECC](#)) and IPCC Reviewer (2021). I am the Regional Deputy Director for Europe of the **International Nitrogen Initiative (INI)**. In Spain, I have been the **Coordinator of the Spanish Network on Greenhouse gas mitigation in the afro-food sector (REMEDIA, 2022-2024)**. I have supervised a 21 Bachelor or Master Thesis and coordinated 4 postdocs such as the postdoctoral Juan de la Cierva Fellowship, Eduardo Aguilera (FJCI-2017-34077). Co-supervisor of 2 on-going PhD Theses. Passionate about the scientific dissemination of science to society. Active participant in scientific dissemination initiatives both in the form of articles (14 articles in general media) and in Science Week.

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications

- Hurtado, J., Velazquez, E., Lassaletta, L., Guardia, G., Aguilera, E., **Sanz-Cobena, A.** (AC), **2024**. Drivers of ammonia volatilization in Mediterranean climate cropping systems, [Environmental Pollution](#) 122814, <https://doi.org/10.1016/j.envpol.2023.122814>
- Sanz-Cobena A.**, (1/23), **2023**. Fertilization strategies for abating N pollution at the scale of a highly vulnerable and diverse semi-arid agricultural region (Murcia, Spain) *Environ. Res. Lett.* 18 064030 DOI 10.1088/1748-9326/acd709
- Garnier, J., Billen, G., Aguilera, E., (9/9), **Sanz-Cobena, A.**, **2023**. How much can changes in the agro-food system reduce agricultural nitrogen losses to the environment? Example of a temperate-Mediterranean gradient, *Journal of Environmental Management*, 337, 117732, <https://doi.org/10.1016/j.jenvman.2023.117732>
- Lassaletta, L., **Sanz-Cobena, A.**, Aguilera, (2/14) Gimeno, B.S., **2021**. Nitrogen dynamics in cropping systems under Mediterranean climate: a systemic analysis. *Env. Res. Lett* 16, 073002.
- Billen, G., Aguilera, E., Einarsson, R., Garnier, J., Gingrich, S., Grizzetti, B., Lassaletta, L., Le Noë, J., **Sanz-Cobena, A.**, **2021**. Reshaping the European agro-food system and closing its nitrogen cycle: The potential of combining dietary change, agroecology, and circularity, *One Earth*, 4, 6, <https://doi.org/10.1016/j.oneear.2021.05.008>.
- Einarsson, R., **Sanz-Cobena, A.**, Aguilera, E., Billen, B., Garnier, J., van Grinsven, HJM, Lassaletta, L., **2021**. Crop production and nitrogen use in European cropland and grassland 1961–2019. *Sci Data* 8, 288 <https://doi.org/10.1038/s41597-021-01061-z>

- Sanz-Cobena, A.**; Misselbrook, T; Hernáiz, P; Vallejo, A., 2019. Impact of rainfall to the effectiveness of pig slurry shallow injection method for NH₃ mitigation in a Mediterranean soil. [Atmospheric Environment Q1. 216, 116913.](#)
- Sanz-Cobena, A.**; L. Lassaletta; J. Gamier; P. Smith., 2017. Mitigation and quantification of greenhouse gas emissions in Mediterranean cropping systems. [Agriculture, Ecosystems & Environment](#) 238, 1-4.
- Cayuela, M.L., Aguilera, E., **Sanz-Cobena, A.**, (3/16), 2017. Direct nitrous oxide emissions in Mediterranean climate cropping systems: Emission factors based on a meta-analysis of available measurement data. [Agric. Ecosyst. & Environ.](#) 238, 25-35.
- Sanz-Cobena, A.**; L. Lassaletta; E. Aguilera; A. del Prado; J. Garnier; G. Billen; (1/34), 2017. Strategies for greenhouse gas emissions mitigation in Mediterranean agriculture: A review. [Agriculture, Ecosystems & Environment](#) 238, 5-24.

C.2. Congress

In the last 10 years, I have had a regular participation in international conferences (25 out of a total of 54) through oral communications (16) and posters. I have participated in the organizing committee of 8 national or international conferences or workshops and being the coordinator of the org. committee in 5 of them at international level. Below, I show some of the most relevant ones:

- Coordinator Organizing Committee.** [21st International Nitrogen Workshop.](#) (Madrid, 24-28 october 2022).
- Invited conference.** Herramientas de cálculo: huella de carbono y análisis de ciclo de vida. “Los suelos de los sistemas agrícolas como herramienta de lucha frente al cambio climático”. **Colegio Oficial de Ingenieros Agrónomos de Aragón, Navarra y País Vasco**, 6-7 october 2020.
- Invited conference.** Procesos y factores que determinan las emisiones de N₂O en suelos agrícolas. Uso de meta-análisis. Generación de nuevos factores de emisión. Pasos hacia el Tier2. **Red de Excelencia NUEVA**, 01/03/2020
- Invited conference at COP25** as expert member of the **MedECC Expert Pannel** (on Climate and Environmental change in the Mediterranean). Madrid, 13/12/2019
- Invited conference.** “Emisiones de gases de efecto invernadero en el sistema agroalimentario español y europeo”. Organizado por **Real Academia de Ingeniería de España**. Valencia (España). 01/06/2019
- Oral presentation.** Greenhouse gases emissions from agriculture in the north of France (1852-2014): consequence of specialisation and intensification. **20th International Nitrogen Workshop.** Rennes, Francia. 24/06/2018
- Oral presentation.** Strategies for GHG mitigation in Mediterranean cropping systems. A review. **International Nitrogen Initiative Conference.** Melbourne, Australia, 03/12/2016
- Invited conference.** Agricultural ammonia emissions could be reduced without affecting crop yield. **European Environmental Bureau.** Bruselas, Bélgica, 18/03/2016
- Oral presentation.** Animal feeding strategies to abate N₂O and NH₃ emission from surface applied slurry to a grassland soil. **RAMIRAN 16th International Conference.** Hamburg, Germany. 08/09/2015
- Coordinator Organizing Committee.** **IV Workshop REMEDIA** on mitigation of GHG emissions from the Spanish (Madrid, 23-25 Marzo 2015).

C.3. Research projects

- AgroSceNa-UP (PID2019-107972RB-I00). Spanish Research Agency, **2020-2023. Budget: 167000 €.**
Role: co-Principal Investigator (co-PI)
- AgroGreen-SUDOE (SOE4/P5/E105). Interreg-SUDOE, **2020-2023. Budget: 1.5 M€.** **Role: PI**
- Estimación de Impactos Agroambientales asociados a Escenarios de Manejo en Sistemas Agrícolas mediterráneos (APOYO-JOVENES-NFW8ZQ-42-XE8B5K). Programa de apoyo a proyecto de I+D para Jóvenes Investigadores UPM, **2020-2022. Budget: 60000 €.** **Role: PI**
- El impacto del crecimiento económico moderno en el cambio climático (España, 1860-2020). Fundación Ramón Areces. Universidad de Granada, **2020-2024. Budget: 36000€** **PI: Juan Infante Amate (U. Granada).** **Role: Researcher.**

Technology for Agrosystems sustainability AGRISOST-CM (P2018/BAA4330), Comunidad de Madrid **2019-2023. Budget: 782971 €.** PI: A. Vallejo. **Role: Researcher**, Coordinator of the Objective 7 of the Project.

Red de Excelencia (NUEVA) AGL2017-90924-REDT, Ministerio de Economía y Competitividad. **2019- 2021. Budget: 20000€.** PI: David Yañez (CSIC). **Role: Researcher**

Towards INMS (International Nitrogen Management Systems) '*Towards INMS*' (a global project implemented by the UN Environment. Fund. Global Environment Facility, GEF), **2017-2023. Budget: 4923093,52€.** PI: Mark Sutton (CEH, UK), **Role: Researcher. Responsible of the Western EU Demo region.**

Sistemas agrarios sostenibles. Manejo de carbono, nitrógeno y agua para optimizar producción y calidad (S2013/ABI-2717), **2014-2018. Budget: 713810€.** PI: A. Vallejo (UPM). **Role: Researcher**

Estrategias para reducir la emisión de gases de efecto invernadero en sistemas agrícolas (AGL2012-37815-C05-01). Plan Nacional. Ministerio de Economía y Competitividad, **2013-2015. Budget: 145000 €.** PI: Antonio Vallejo García (UPM). **Role: Researcher**

José Castillejo para realización de estancias postdoctorales (CAS14/00337), Ministerio de Economía y Competitividad. **01/05/2015-30/09/2015. Budget: 12757€. Role: PI**

C.4. Contracts, technological or transfer merits

“Development, validation and refining of new ammonia emission method on field scale using nuclear techniques technical contract 24236”. **IAEA-FAO (2021-present). Budget: 42000 €.** **Role: PI**

“Asesoría técnica para elaboración de criterios técnicos y directrices de desarrollo para facilitar la coordinación de los agentes municipales implicados en el proyecto de barrios productores”. **Ayuntamiento de Madrid. Budget: 8470 €.** **23/11/2020-23/11/2021. Role: PI**

“Contract NEC05348 for organizing the INMS, NUE, demo regions, barriers and modelling workshop”. **INMS (GEF). 20/10/2019. Budget: 8000€** **Role: PI**

“[Cálculo de la Huella de Carbono de la Agricultura Española](#)”. **Real Academia de Ingeniería Española (RAIN), 30/01/2019-28/02/2020. Budget: 20334,71 €.** **Role: PI**

“Ammonia emission reduction in mediterranean agriculture with innovative slurry fertigation techniques”. **Centro de Investigación y Tecnología Agroalimentaria de Aragón. 17/01/2019-2021. Budget: 8500 €.** **Role: PI**

“Understanding N₂O fluxes from nitrification inhibitors treated soils. Experiment in microplots with ¹⁵N”. **Eurochem Agro Iberia S.L. 14/05/2015-2016. Budget: 26000 €.** **Role: PI**

“Volatilización de amoníaco y emisión de N₂O en cultivo de colza. Efecto de aplicación de inhibidores”. **EuroChem Agro Ibérica S.L. 01/03/2018- 01/12/2018. Budget: 30000 €.** **Role: PI**

“Investigación sobre los marcos públicos de las ciudades que han firmado el pacto de Milán” **Foro Agrario. 30/12/2017-30/07/2018. Budget: 38412,52 €.** **Role: PI**

“Apoyar las actividades de investigación científica y técnica de carácter ambiental realizadas por el Foro Agrario acerca de los procesos de agricultura y naturación urbana en la ciudad de Madrid”. **Foro Agrario, 26/01/2017-31/07/2017. Budget: 22819,46 €.** **Role: PI**

“Evaluación de la volatilización de NH₃ y las emisiones de N₂O en un cultivo de maíz tratado con purines de cerdo con y sin inhibidor de nitrificación”. **Eurochem Agro Iberia S.L. 15/11/2016-31/05/2017. Budget: 26000 €.** **Role: PI**