

My and my institution's area of expertise

Name: Cuong Manh Duong

Position: Lecturer

Unit: Department of Biotechnology, Institute of Biotechnology – Food Technology

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Expertise: Waste management, anaerobic digestion, biosecurity, metagenomic analysis, bacterial analysis.

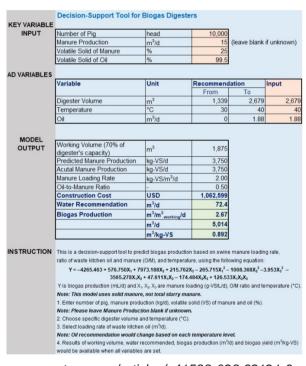
- I have been working at the TUAF since 2013.
- I earned my Ph.D. degree in Bioengineering at the University of Missouri (USA) in 2021.
- I worked as a postdoctoral fellow at the Department of Plant Science and Technology (MU) until March 2024.
- My research focused on the analysis of soil health, the development of a biogas prediction model, and a biosecurity project aiming at a decision-support tool.



My and my institution's area of expertise

Expertise:

- My expertise: environmental protection and renewable energy, such as additive-based treatment for manure, anaerobic digestion systems, and microbial analysis.
- I worked on several projects in microbiology and molecular biology with the use of JASP, R, and other statistical software.
- TUAF is a teaching and research institute with several centers focusing on agriculture and forestry: the Center of Crop Research for Adaptation to Climate Change, and the Agriculture and Forestry Research & Development Center for Mountainous Region.
- We work on the preservation of endangered plants, and improving the conditions to help crops better deal with climate change, e.g., the development of a soybean strain that can grow in drought conditions.





My proposed Research Idea for the 9th JFS Call

Research Question:

How can marine algae be transformed into a valuable product for renewable energy and animal food?

Proposed Project Aims:

- ✓ Assess the potential of marine algae and its production for renewable energy and feeding livestock in Viet Nam.
- ✓ Suggest strategies to mitigate the negative impact of climate change on marine algae, and local life
 for sustainable development.

Proposed Research Activities:

- Preliminary study on climate change impact on algae.
- Assessment of marine algae production in the Vietnamese coastline.
- Pilot study of co-digestion of algae and other agricultural wastes for biogas production.
- Pilot test of using algae for feeding livestock.



My proposed Research Idea for the 9th JFS Call

Among the 17 Sustainable Development Goals (SDGs), this project targets:

- Goal 7: Affordable and Clean Energy.
- Goal 13: Climate Action.
- Goal 14: Life Below Water.
- Goal 17: Partnerships for the Goal.





Project Consortium

My organisation: Institute of Biotechnology – Food Technology, Thai Nguyen University of Agriculture and Forestry (TUAF), Viet Nam.

Role: TUAF team will be responsible for the sample collection, contacting local officials, and conducting the pilot studies.

Further existing partners:

Partner: Agricultural Engineering Extension (Dr. Teng-Teeh Lim's lab), University of Missouri (MU), USA.

Expertise: MU is designated as a Research I and AAU. Certified University. The team led by Dr. Lim has experience and knowledge regarding the environment, agricultural air emissions, and nutrient management systems to enhance the degradation of veterinary antibiotics, co-digestion modeling, and nutrient/water recycling for animal production.

Role: Propose the methodologies and consultancy for experimental designs and data analysis.



Project Consortium

Partners that we are seeking for our project consortium:

Region: Southeast Asia or Europe

Expertise: those who have experience with marine algae, economic assessment, and processing animal food from agricultural products.

Role: The partners are expected to provide scientific insights and consultancy in terms of algae's potential to make and evaluate animal food from algae.

Region: Southeast Asia or Europe

Expertise: Data analysis, life cycle assessment (LCA).

Role: The partners are expected to enhance the research capacity of the local institute, based on visiting activities, or joint research.

