

# Green Farm

## Ireland's pig industry as a nexus of agricultural waste management and renewable energy generation



### Introduction

The need to mitigate greenhouse gas emissions from the Irish agriculture is driving interest in on-farm biogas plants. The EU Landfill Directive has resulted in a major increase (25% since 2013) in the amount of source segregated food waste being collected in Ireland. Food waste is an excellent substrate for anaerobic digestion when combined with manure which stabilizes the process. The Irish pig sector can provide a stable source of manure throughout the year. The "Green Farm" project was funded by Science Foundation Ireland in 2013. The project aims to assess the technical and financial feasibility of anaerobic co-digestion plants on Irish pig farms.

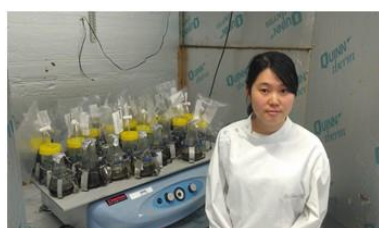
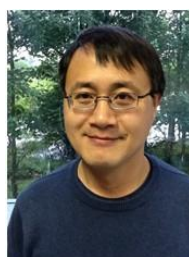
### Key Findings

- Co-digestion of pig manure and food waste had synergistic effects on methane yields and reaction kinetics.
- Co-digestion increased methane yields without impacting digestate biosafety or dewaterability
- Dry co-digestion effectively eliminated enteric indicator bacteria (coliforms, enterococci, *E. coli*) as well as *Salmonella*.
- The economic viability of farm-based co-digestion plants is dependent on ensuring a large supply of food waste is available.



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**Research Team:** The Green Farm project is a collaboration between NUI Galway, Teagasc and WIT.



PIs: Prof. Xinmin Zhan (NUI Galway), Dr. Peadar Lawlor (Teagasc), Dr. Gillian Gardiner (WIT)  
PhD students: Yan Jiang and Conor Dennehy

### Workshop on assessing the viability of on-farm anaerobic co-digestion systems in Ireland

10.00AM on 28<sup>th</sup> March

Teagasc, Grange, Dunsany Co. Meath

Topics to be discussed include-

- The economic potential for on-pig farm food waste biogas plants
- The barriers and incentives for the establishment of on-farm biogas plants in Ireland.
- On-farm biogas plants in Europe- a continental perspective.

The workshop will also include a tour of the newly established biogas plant located in Teagasc Grange.