

Climate Neutral Farms (ClieNFarms)

Keywords: Climate neutral, low GHG emissions, dairy farm systems

Brief project outline:

“ClieNFarms” is a collaborative research programme between European and New Zealand organisations. The aim of ClieNFarms is to co-develop and upscale systemic locally relevant solutions to reach climate resilient sustainable farms by interactively integrating and improving existing solutions to achieve economically viable business models in farming systems. ClieNFarms involves researchers, farmers, extension services, agri-food business, policymakers, financial organisations and citizens.

In NZ, researchers from AgResearch and Massey University are part of the ClieNFarms consortium, and will be using the Southern Demonstration and Research Farm (SDRF) of the Southern Dairy Hub (SDH), near Invercargill, as a case-study farm for the project. SDRF focuses on a combination of demonstration and farm systems research and enables demonstration of ‘lower GHG emissions’ at a farmlet scale that is large enough to easily upscale to an operational farm, but also enables a farm systems research comparison with alternative farmlet systems, including a business-as-usual system.

The aim of the ClieNFarms project is to assess the GHG footprint of the farmlets and to augment them with scenario modelling to explore the environmental and economic impacts of additional strategies for reducing the GHG emissions of the farmlet systems. In addition, this project also aims to develop Marginal Abatement Cost Curves (MACCs) for GHG mitigation options.

The area the PhD candidate will be working on includes collation of the input data for the GHG footprinting and scenario modelling, on-farm experience of the farmlet systems at SDRF, and conducting the modelling. The aim of the PhD project is to extend the current modelling approaches to enable further extrapolation of the results and better understand uncertainty and variability in the estimated GHG mitigation efficacy. Depending on the skills of the candidate the project may also include more in-depth analysis of the MACC results, and compare MACCs based on standalone mitigations with MACCs based on packages of mitigations.

Preferred candidate skills or experience:

- **Meet PhD entry requirements at Massey University**
See: [Entry requirements at Massey University](#)
- Understanding of GHG emissions from dairy systems; Experience with (or strong desire to learn) GHG footprinting and farms systems modelling
- Affinity with marginal abatement cost curves

Host institute(s) and location(s): AgResearch Invermay, Mosgiel (primarily); Massey University, Palmerston North (as needed)

Project leader(s)/research supervisors: Dr Cecile de Klein (AgResearch) and Dr Simone Pieralli (Massey University)