Irish–New Zealand Joint Research Initiative Projects (2022–2024)

April 2026

Project name	Details/Outcomes of the project	Timeline	NZ Consortium partners	Irish Consortium partners
	Round One (2022)			
REEFIR Refining Emission Factors for Inventory Reporting	The project seeks to refine emission factors for inventory reporting. The project seeks to generate and collate emissions data from fertilisers (mineral and organic) to better represent fertiliser in the national inventory by quantifying emissions from different fertiliser types and better understanding the key drivers of GHG production in fertiliser use. This leads to better fertiliser management and lower farm emissions.	2023 to 2027	Tony van der Weerden, AgResearch	Dominika Krol, Teagasc Johnstown Castle
Methane Predict Development and validation of high throughput predictors for large capacity screening of methane emitting	This project seeks to provide large capacity screening of methane emitting livestock at an individual and system level. The project accelerates the development of new proxy techniques to identify low emission animals in a herd or flock. This research is needed to accelerate the contribution of genetics to methane reduction.	2023 to 2027	Suzanne Rowe, AgResearch	Fiona McGovern, Teagasc (lead) Irish Cattle Breeding Federation

ROADMAP Roadmap for efficient and effective ruminant breeding programs to reduce enteric methane production	The project seeks to use genetic data and variability to develop a road map for optimal breeding programme design and link genetic gain models to national inventory models. This leads to a fully costed roadmap on sheep, beef, and dairy breeding strategies, along with the expected gains achievable in reducing enteric methane emissions and a way of incorporating animal genetics into both countries' national inventory.	2023 to 2027	Natalie Howes, AbacusBio Limited, Beef and Lamb, Dairy NZ	Donagh Berry, Teagasc Moorepark (lead) Irish Cattle Breeding Federation
RU_MINING Rumen microbiome mining for bacterial cultures to reduce methane	The project seeks to better understand rumen chemistry and microbiology to reduce methane. This includes investigating the potential for altering the development of the rumen microbial population in young ruminants to reduce the methane they produce from a young age. This builds on the work Fonterra have undertaken with their proprietary cultures (i.e., what they've colloquially called 'kowbucha'). If successful, this will lead to the development of silage inoculants and feed additives to reduce methane.	2023 to 2027	William Kelly, AgResearch	Catherine Stanton, Teagasc, Moorepark (lead) Teagasc Grange
Round Two (2023)				
BNIPASTURES Reducing nitrous oxide emissions from ruminant systems through accelerating nitrification inhibition	The proposal seeks to advance Biological Nitrification Inhibition (BNI) as a natural, plant-based strategy for mitigating nitrous oxide (N_2O) in grass-based livestock systems. BNI is one of the priorities in the BERSA plan and there are some existing domestic projects in this area. The research in this proposal is designed to build on and complement existing projects, accelerating development.	2024 to 2028	Saman Bowatte, AgResearch	Bridget Lynch, Teagasc (lead) Trinity College Dublin University College Cork

in ryegrass and plantain mixed pastures	This project is a priority for both countries and will help drive wider international activities in support of it. If successful, this will lead to pasture plants being bred to directly inhibit nitrate leaching and N_2Oemissions.			
Emissions4Pasture Development of methane emission factors specific to pasture-based dairy systems	The proposal seeks to refine the agricultural GHG emissions inventories in both countries by developing methane emission factors specific to pasture-based dairy systems. This includes identifying accurate accounting, and widespread uptake, of practical methane reduction strategies, reducing GHG emissions from agriculture. These will seek to maintain profitability and productivity at a farm, community, and sector level. This will support countries to improve the GHG reporting and understanding of how management changes could impact methane emissions.	2024 to 2028	Jane Kay, DairyNZ	Ben Lahart, Teagasc (lead) University College Cork Irish Cattle Breeding Federation
MAPSERS-C Modelling and measuring agricultural management on peat soils to enhance removals and sequestration of carbon	The proposal seeks to create a pathway to better understanding and reporting of carbon emissions from drained peat agricultural soils in Ireland and New Zealand. This includes modelling the impact of agricultural management and future climate scenarios on carbon dynamics of drained peatlands and measuring carbon emissions across a range of agricultural management intensities on organic soils. This will lead to a better understanding of how we should be managing our	2024 to 2028	Louis Schipper (University of Waikato, and Manaaki Whenua Landcare Research	Giulia Bondi, Teagasc Johnstown Castle (lead) Trinity College Dublin University College Dublin

	peatlands and clarify if land use change could be a viable emissions reduction option.			
PRISM Proximal sensing for near real-time monitoring of soil organic carbon pools for climate smart management	The proposal seeks to develop solutions to quickly assess and identify soil carbon pools and indicators of carbon sequestration in agricultural landscapes. If successful, this technology will support farmers to rapidly measure in-field soil carbon, identify soil organic carbon sequestration gaps/opportunities, and monitor dissolve organic carbon in soil water and agricultural drainage networks. This technology will be crucial if reporting on carbon removals and soil carbon impacts become a requirement for trade.	2024 to 2028	Pierre Roudier, Landcare Research New Zealand Ltd	Karen Daly, Teagasc Johnstown Castle (lead) Trinity College Dublin University College Dublin
Round Three (2024)				
SuperTECH Strategic Urine Patch Emissions Reduction Technology	The proposal seeks to improve the targeted application of nitrification inhibitors (NIs) to urine patches in grazing systems, potentially reducing nitrous oxide (N2O) emissions by up to 40% while minimising the use of NIs by 80%. It will address factors affecting the effectiveness of NIs and assess potential food safety and environmental risks associated with their use. If successful, the project will lead to improved emission reduction strategies and optimised NI application in grazing systems.	2025 to 2029	Surinder Saggar, Manaaki Whenua Landcare Research AgResearch	Patrick Forrestal, Teagasc Johnstown Castle (lead) University College Dublin

DREAM Factors Disaggregated dairy urine emission Factors	The proposal seeks to generate and collate N_2O emissions data from dairy urine to develop advanced (Tier 3) emission factors for dairy urine N_2O emissions by quantifying emissions from pasture composition and urine nitrogen load. If successful, it will enhance understanding of farm management practices, reduce farm emissions, and contribute to the IPCC Emission Factor Database.	2025 to 2029	AgResearch	Dominika Krol (Teagasc) Johnstown Castle (lead) University College Dublin
FARMAI Agricultural Methane Emissions: Farm Scale to Regional Scale	The proposal seeks to standardise methane emission measurements on farms by integrating mobile measurement platforms (like cars and drones) with existing methods and MethaneSAT data. It will address the limitations of current techniques and aim to improve accuracy across regions. If successful, the project will enhance the reliability of farm-scale to regional-scale methane emission estimates and support more effective GHG management practices.	2025 to 2029	Alexander Geddes, National Institute of Water and Atmospheric Research (NIWA), With: DairyNZ; Manaaki Whenua Landcare Research; Livestock Improvement Corporation Ltd	Damien Martin (University of Galway)