

Title	Development of novel GHG mitigation strategies and smart monitoring tools for dairy production systems (GREENMILK)
Project Timeframe	Apr 2017 – Jun 2020
Countries Involved	New Zealand (AbacusBio Ltd, in partnership with a range of stakeholders including AgResearch, Dairy NZ, CRV Ambreed and LIC).
Aim	To identify a range of methane reduction traits that could be used within a genetic improvement program, and to evaluate the policy frameworks that could be used to incentivise adoption.
Research Highlights	<ul style="list-style-type: none"> • Developed a community of interest website application, which provides a real opportunity for the GRA to engage with its stakeholders and for the researchers to keep them updated. • Developed an international benefits app - a simple framework to assess the potential opportunity costs and benefits of switching to a low methane index. • Reviewed the policy options to support implementation, identifying a range of policy mechanisms that could be utilised to incentivise farmer adoption of low-methane genetics (including ETS and carbon taxes, mandatory standards and regulation, and the provision of rebates, subsidies and grants). • Relationships were established with Yvette de Hass (Wageningen, Netherlands), Erwin Koenen and Rene van der Linde (CRV-Ambreed, Netherlands), Andre Cromie (Irish Cattle Breeding Federation, Ireland), Donagh Berry (Teagasc, Ireland), Paul Arthur & Kath Donoghue (Department of Primary Industries - New South Wales, Australia), Christine Baes (University of Guelph, Canada), and Caeli Richardson (Datagene, Canada).
Future Work	<ul style="list-style-type: none"> • Reviewing the community of interest website prototype and industry benefits app and agreement on next steps. • Developing and implementing a low methane breeding programme for the New Zealand dairy industry.
Key Research Outputs	<p><u>Journal article(s)</u></p> <p>Zhang, X., Amer, P.R., Jenkins, G.M., Sise, J.A., Santos, B., Quinton, Q. (2019) Prediction of effects of dairy selection indexes on methane emissions. <i>Journal of Dairy Science</i>, 102(12): 11153-11168.</p> <p><u>Conference presentation(s)</u></p> <p>Zhang, X., Jenkins, G.M., Sise, J.A., Quinton, Q., Amer, P.R. Novel selection criteria will be required for reduction on New Zealand's National greenhouse gas emissions inventory. 23rd Conference of the Association for the Advancement of Animal Breeding and Genetics, Armidale. 27 October – 1 November 2019.</p>