

METHANE INDEXING OUR NEXT GENERATION OF DAIRY SIRES

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Ruminant animals are a significant source of methane, a potent greenhouse gas. Methane is produced in the rumen and belched out. Methane output can be altered by feeding some forages and concentrates, but in general the more an animal eats, the more methane is produced. Genetic variation in methane production has been identified in sheep and cattle. Breeding 'low methane' cattle could assist farmers in meeting their obligations to reduce greenhouse gas emissions.

Livestock Improvement Corporation (LIC) and CRVAmbreed (CRV) are working with the New Zealand Agricultural Greenhouse Gas Research Centre to measure methane output in young dairy bulls. Each year around 300 young bulls are purchased and enter Sire Proving Schemes. Around 80 daughters per sire are generated and the performance of their daughters is used to identify the top bulls which then sire the majority of NZ dairy cattle. Most traits of economic value to dairy production can only be measured in lactating females. However, methane can also be measured in males. A methane ranking can be generated and used to make selection decisions before the bull is used for any inseminations.

Methane output is highly correlated to feed intake, therefore it is essential to measure feed intake at the same time as methane. The proposed trial will involve young bulls being housed in pens in a barn. Methane will be measured using a GreenFeed system (C-Lock Inc.). Methane gas flux is measured by the bull putting their head into the GreenFeed and the animals' breath is analysed for methane. Feed entices the animals to use the GreenFeed and keeps them there long enough to get a stable methane record. Separate feed intake bins SmartFeedPro, (C-Lock Inc.) will record intake of lucerne hay cubes. Methane production per kg of dry matter consumed will be calculated over a three week measurement period. At least 50 records per animal are needed to accurately estimate methane production.

A pilot trial of up to 45 animals will take place in 2020. If successful from 2021 all bulls in the LIC and CRV sire proving schemes will have methane output measured.

Editor's note: *An extended manuscript has not been submitted for this presentation.*
