## FARMERS WEEKLY – farmersweekly.co.nz – August 19, 2019 **21**

## Gas culprits identified in rumen

richard.rennie@globalhq.co.nz Richard Rennie

another way to cut livestock gas A JOINT effort by New Zealand, Japanese scientists has discovered Australian, American and

a vital gas for rumen methanogens generating the greenhouse gas produce and consume hydrogen, that feed on it in the process the main rumen microbes that first time, been able to identify Researchers have, for the

Otago, Illinois, Hokkaido and Microbial Ecology. by the International Society for have just been published online Monash Universities. The findings The work by AgResearch and

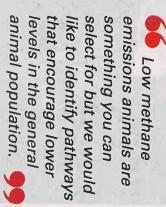
methane inhibitors that focus on other recent discoveries around reducing the methane microbes The scientists' work contrasts to

AgResearch said. grow on in the rumen," research methanogens love to live on and produce the hydrogen that the is more about the organisms that focusing on the methanogens. It head Dr Graeme Attwood of "So this work is not so much

part of the rumen ecosystem with The microbes are an important

> methanogens that form 70% of its methane-forming microbial their hydrogen providing fuel for

hydrogen production. ways to control the process of "From here the trick is to find



## **Dr Graeme Attwood**

AgResearch

digest that fibre," Attwood said. the rumen so we will need when fibre is digested in compromise the animal's ability to technologies that do not "The hydrogen is produced

not make methane as a result of the hydrogen to organisms that do "Our best scenario is to redirect

He said the team was fortunate

to have access to data generated from trials studying low and high gas emitting sheep.

and low emitting sheep. in gas emissions between high was as much as a 38% difference also done in NZ and found there That world-leading research was

lot of DNA sequencing on them. get some rumen samples from hose animals and we did a whole "We were lucky enough to also

hydrogen, effectively competing set of organisms consuming with methanogens for that animals had a whole different "We found the low emitting

levels in the general animal pathways that encourage lower for but we would like to identify are something you can select "Low methane emitting animals

consumption." levels without compromising fibre that will reduce the hydrogen "We are looking at molecules

shot fix to methane, Attwood cautions it is a difficult path to would love to see an easy, one While much of the industry

trick is to make sure you get changes when you introduce inhibitors to the rumen but the "You can see quite rapid



GASSED: Identifying gas-producing off at the pass, scientist Dr Graeme microbes might help cut emissions

effects last long enough to be inhibitors quite specific to the larget bacteria and that their

microbes, just as it does with for resistance to develop in "There is also the opportunity

to reduce the likelihood of that nappening. from and possibly rotate over time molecules on hand to choose "So we require a suite of

> if an animal could be vaccinated and produce the required response itself. The ideal outcome would be

through compound libraries, now the researchers are sifting humans, for example. approach for vaccinations in the usual one target-one needle range of microbes, compared to With the microbes identified But that is tough given the

on ration-fed livestock. steeking out those compounds that for commercial release this year methane inhibitor 3-NOP is due company DSM has claimed its deliver the greatest gas-reducing response from the microbes. Massive Dutch chemical

colleagues do not see it making their work redundant. Attwood said he and his

can work together." hydrogen while it focuses on the we are looking at the supply of complementary to our work, given methanogens directly. The two "Far from it. It is quite

emissions from agriculture. alliance of 57 countries working together to reduce greenhouse gas Research Alliance on Agricultural of the activities of the Global the Government in support reenhouse Gases, a NZ initiated The work was funded by