

# Getting a handle on gas emissions

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**G**REENHOUSE gas emissions are difficult to quantify on farms, a job made harder by the numerous assumptions and huge variations in results from feeds.

So it is difficult for farmers and the sector to get a handle on the real picture of farm emissions and understand the mitigation options available.

A laboratory in Auckland has been working with various farms to create a data set that could take one assumption out of the equation.

It will help paint a more accurate picture of what is happening with nutrient efficiency on farms.

The lab, Alltech IFM, it supports the work of the carbon footprinting company Alltech bought in 2015, Alltech E-CO2. The lab operates an in vitro fermentation model that incorporates a rumen fermentation simulator where the feed samples degrade the same way they do in a live cow. It measures the products of the fermentation and the speed of digestion.

The Alltech team is gathering large amounts of data that could help the sector with emissions profiling and mitigation planning but because of the large variation in feed farmers use and the range in quality it has been difficult to understand individual farm emissions.

"Farmers need to know their greenhouse gases but they also want to know how that interacts with their farm and what it means for their practices. They want to know what low-hanging fruit there are," innovation sales manager Nigel Meads says.

"The data from the in vitro fermentation model will allow farmers to see the numbers to help them quantify what their personal footprint is and the overall life cycle analysis from Alltech will help them determine whether their efforts are leading to improvement."

Alltech is working closely with other New Zealand research groups to ensure



Alltech innovations sales manager Nigel Meads and a lab technician check out the feed samples in the firm's IFM lab that is supporting the work being done by its carbon-footprinting company Alltech E-CO2.

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**Nigel Meads**

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they do not duplicate any work and complement what is already available.

"I'm aware of about 115 carbon calculators and they all work to certain degrees of accuracy but none of them has incorporated farm-specific, experimentally derived data," Meads says.

"The biggest farm-specific data set for

pasture-based farming is in NZ but the Irish are on our tail. Hopefully, we will beat them to the mark."

Alltech is building the experimentally derived data and working on tying it into its life cycle analysis carbon calculator. The calculator works to an international standard.

It has been researching farm efficiency and sustainability for 40 years.

The IFM data is adding accuracy and removing assumptions and will provide a better reflection of what is happening on farms.

"When we say farm-specific data we aren't just talking about the number of cows and how much feed they're feeding. We are directly looking at how much gas the feed makes," Meads says.

"Feedstuffs can vary plus or minus 50% from standard gas emission numbers people use. When you measure a farm specifically you can see that variation.

"We are trying to understand why the variation is there and that will give us

better ideas around best practice.”

The life cycle analysis reporting allows producers to exploit the interchange between different elements of systems to get the best outcome for farmers and the environment.

In a recent pilot study in Europe Alltech showed that by focusing on animal health.

The study included 15,000 animals on 58 farms in 19 countries.

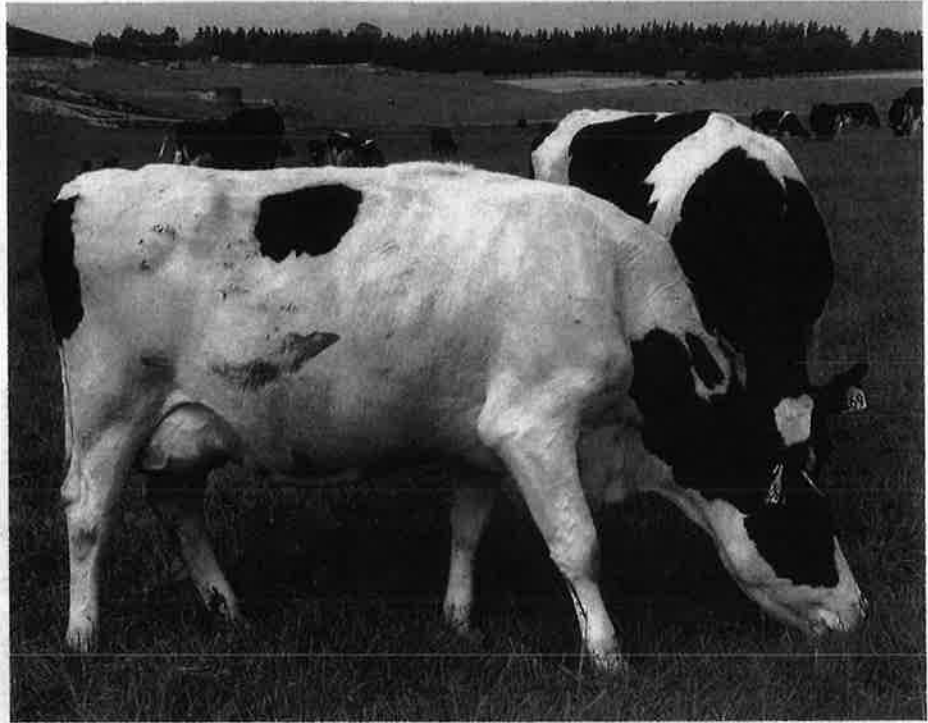
Alltech calculated the footprint at the start then worked with those farmers on bespoke solutions to reduce the losses from those farms. Examples of the losses included animal health problems and early culling.

A year later they recalculated those farms and found the farms had more money by combating losses.

Collectively, the farms cut 7000 tonnes of carbon dioxide equivalent.

“The animals were doing better and the farmers were making more money and the environmental impact came down at the same time.

“Those are the three touch points we are keeping our sights on – animal welfare, the farmers’ back pocket and the environment,” Meads says.



**Alltech is using the in vitro fermentation model that will let farmers see the numbers to help them quantify what their personal footprint is.**

“The country has a target to reduce carbon by an absolute number but needs to make sure when we get to that absolute

number we are producing the most salable product we can for the carbon budget we’ve been given.” ■



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