

# Estimated Greenhouse Gas Emissions – Steve Ronalds (Dairy Cropping Australia) Jindivick, Victoria

These figures have been calculated using the Dairy Greenhouse Gas Abatement Strategy or DGAS. The DGAS calculator was developed to estimate the greenhouse gas (GHG) emissions for Australian dairy farms, by using methodologies and emission factors that are reflective of Australian conditions. The calculator can be downloaded at [www.dairyingfortomorrow.com](http://www.dairyingfortomorrow.com)

## What does DGAS estimate?

DGAS estimates four sources of GHGs. These are:

- Methane (CH<sub>4</sub>) respired by stock as part of the digestive process (enteric fermentation) and through manure management;
- Nitrous oxide (N<sub>2</sub>O) is emitted with the management of animal waste and from nitrogen fertilisers. These nitrous oxide emissions are further broken down into direct (occurring on your farm) and indirect (loss to the environment through leaching/runoff and volatilisation);
- Carbon dioxide (CO<sub>2</sub>) from the consumption of electricity and fuels;
- Carbon dioxide (CO<sub>2</sub>) associated with the production of key farm inputs such as grains/concentrates, hay and silage, and fertilisers (pre-farm embedded)

CH<sub>4</sub> and N<sub>2</sub>O have a higher potential to warm the environment, compared to CO<sub>2</sub>, all emissions are converted into carbon dioxide equivalents (CO<sub>2</sub>e). DGAS estimates the CO<sub>2</sub>e emissions both as a total figure (tonnes of CO<sub>2</sub>e) and as a milk intensity figure by dividing total emissions by annual milk production (t CO<sub>2</sub>e per tonne of milksolids). This allows results to be compared between farms, irrespective of differences between farms such as milking herd size and level of milk production.

## What sort of Greenhouse Gas emissions can we expect on Australian dairy farms?

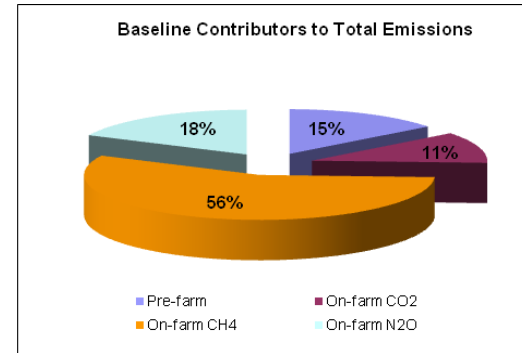
Recent data from DPI Victoria indicates that GHG emissions on Victorian dairy farms range between 7.2 T CO<sub>2</sub>e per tonnes of milk solids to 15.4T with the average being 10.2T CO<sub>2</sub>e per tonnes of milk solids (DPI Farm Monitor Project 2009/10).

## What can we do to reduce Greenhouse Gas emissions on dairy farms?

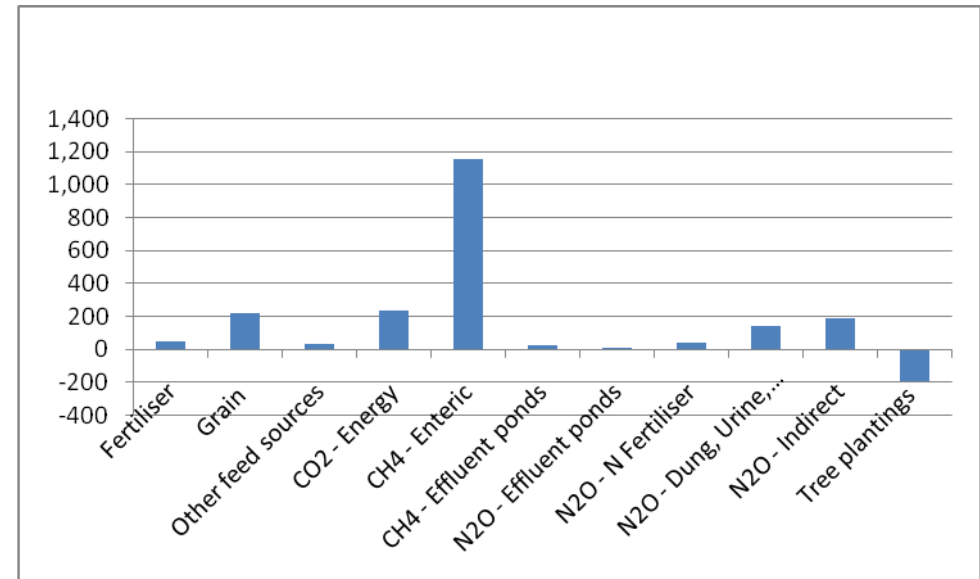
Production improvement options and best management practices are most often linked to greenhouse gas emissions reduction. At present, well managed farms have few options to reduce emissions without significant changes to their farming or feeding system. With no formal incentive in place to reduce GHG emissions, Australian farmers should consider emissions reduction options that lead to productivity gains or have cost benefits. Any option should be looked at within the whole farm system.

A great deal of research is underway within the Australian dairy industry to decrease the release of methane and nitrous oxide from farming systems.

Estimated GHG emissions from Ronalds' farm (2009-10): Tonnes of CO<sub>2</sub> equivalent



Baseline	
Total farm	1,908
Pre-farm	304
On-farm CO <sub>2</sub>	236
On-farm CH <sub>4</sub>	1181
On-farm N <sub>2</sub> O	376
Total farm (t/t MS)	10.9



This information sheet was prepared by Gillian Hayman, Dairying for Tomorrow Coordinator Gippsland. It was prepared for the Future Ready Dairy Systems project funded by The Australian Department of Agriculture, Forestry & Fisheries and Dairy Australia. February 2011.