



**Reducing your carbon footprint**

This comprehensive series aims to offer producers clear and practical information to help them increase efficiency and save money. It highlights affordable and effective methods to reduce greenhouse gas emissions on UK dairy units.

Topic 1: **Cutting through the 'carbon jargon'**

Topic 2: **Fewer emissions from farm waste**

Topic 3: **Improving feed efficiency**

Topic 4: **Reducing emissions through breeding**

Topic 5: **Saving energy and fuel**

Topic 6: **Get water wise**

**I**ncreasing efficiency and cutting costs. Now that's a more palatable way to view the current drive to reduce the carbon footprint of the UK dairy industry. Yes, it is something else for producers to add to their increasingly complicated and time pressured business management strategy. But the good news is that there's real financial payback for your efforts because reducing emissions ultimately

How can you reduce your carbon footprint?

# Busting jargon to save on carbon

In this article, the first in our new series, we aim to cut through some of the jargon and explain why taking steps to reduce your unit's emissions will benefit your business and the environment.

text **Rachael Porter**

means more efficient use of inputs and cost savings.

But with so much scientific fact jumbled with mixed media messages about carbon footprints, any plans for greater efficiency and fewer emissions have to start with some jargon 'busting'.

To help farmers get to grips with the technicalities, DairyCo has produced a series of six factsheets that clearly explain what the main greenhouse gases (GHGs) produced by the dairy industry are, and how producers can actively reduce them while increasing their herd's efficiency and cutting costs.

"De-mystify the wealth of figures and information about this and get to grips with the terminology and the basic scientific principles that contribute to your farm's carbon footprint and you're



## Greenhouse gas glossary

**Carbon footprint:** the total set of GHG emissions caused directly and indirectly by an individual, organisation, event or product (UK Carbon Trust 2008).

**Climate change mitigation:** is any action taken to permanently eliminate or reduce the long-term risks and hazards of climate change ([www.global-greenhouse-warming.com](http://www.global-greenhouse-warming.com)).

**Climate change adaptation:** refers to the ability of a system to adjust to climate change, to moderate potential damage, to take advantage of opportunities, or to cope with the consequences ([www.global-greenhouse-warming.com](http://www.global-greenhouse-warming.com)).

**Abatement:** actions that are specifically designed to reduce GHG emissions, the impact of which can be measured. For example, installing an anaerobic digester

or covering a slurry store. Often referred to as 'abatement potential'.

**Carbon dioxide equivalents (CO<sub>2</sub>e):** describes, for a particular GHG, the quantity of carbon dioxide that would have the same global warming potential. Calculations are based on the global warming potential of each GHG.

**Global warming potential (GWP):** is a measure of how much a given mass of GHG is estimated to contribute to global warming. It is a relative scale which compares the gas in question to that of the same mass of CO<sub>2</sub> (whose GWP is by convention equal to 1). Methane (CH<sub>4</sub>) has a GWP of 21 CO<sub>2</sub>e and nitrous oxide (N<sub>2</sub>O) has a GWP of 310 CO<sub>2</sub>e when considered over a 100-year period (IPCC, 2001).

*Waste management: modern slurry application equipment can help to reduce GHG emissions*



already half way there,” says DairyCo’s R&D manager Karen Wonnacott.

“Many of the measures that can be adopted are low-cost and could actually save money. And changes that do require capital investment provide a great opportunity to generate a return on that investment, so with careful management it can be a win-win situation.”

The two main greenhouse gases to remember in agriculture are methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Carbon dioxide (CO<sub>2</sub>) contributes less than 1% of GHG emissions in agriculture.

### More potent

“Methane is 20 times more potent than carbon dioxide as a GHG and agriculture accounts for more than 40% of all methane produced in the UK,” says Dr Wonnacott. “Ruminants, or rather their rumen micro-organisms, produce most of this methane as part of the digestion process and some emissions are also the result of manure and slurry management.

“Nitrous oxide (N<sub>2</sub>O), also known as laughing gas, is 300 times more potent than CO<sub>2</sub> as a GHG. So not very funny at all, and even less amusing for producers since 75% of the UK’s total production comes from agriculture. Emissions come from the breakdown of fertiliser and manure in the soil and from manure and slurry management,” she adds.

Something to smile about, however, is that changes in waste handling and management can have a huge and positive impact on reducing emission levels, while at the same time making more efficient use of the nutrients within manure and slurry and, therefore, reducing the amount – and cost – of any bought-in fertiliser.

Improving feed efficiency will also, obviously, make more efficient use of nutrients and feed – both home grown and bought in – and result in fewer GHG emissions. Increasing dry matter intake (DMI) improves the efficiency with which feed energy is used and reduces the amount of methane produced per litre of milk. “Better breeding management and improved herd genetics will also reduce the number of cattle required on the farm through improved longevity and lower replacement rates. There will be fewer unproductive animals in the herd,” adds Dr Wonnacott.

Producers can focus on improving efficiency and making cost savings with the added benefit of reducing their business’ carbon footprint.

## Key ‘emitters’

Five areas where more efficient management can cut costs and your herd’s carbon footprint:

- Manure/slurry management
- Feed efficiency
- Breeding and genetics
- Energy and fuel use
- Water use efficiency

And there’s more good news. Funding is available to help producers take steps to reduce their carbon footprint and increase efficiency. So, if it’s a trailing shoe slurry spreader you need, you may qualify for a grant, through one of England’s regional development agencies (visit [www.englandsrdas.com](http://www.englandsrdas.com)).

And DEFRA is offering interest-free loans, through the Carbon Trust, of up to £20,000 to producers wanting to invest in equipment and technology to help them reduce their carbon footprint (see [www.carbontrust.co.uk/loans](http://www.carbontrust.co.uk/loans)).

### Interest-free loans

From 1 February 2010, producers will be eligible for unsecured, interest-free loans for between £3,000 and £20,000 to help them upgrade to more energy-efficient equipment. And, after the loan is repaid, producers should make direct savings on their energy costs, as well as cutting the carbon footprint of what they produce.

“At the moment there’s no pressure on producers to calculate their carbon footprint or to take steps to reduce it. But we believe that forewarned is forearmed. It’s on the agenda, hence the wealth of information and help that’s available to producers. And it could be something that producers are forced to work on in the future.

“A proactive approach is always best. If the industry is seen to be doing something to reduce its carbon footprint, legislation – or at least tough legislation – and all the red tape that comes with that should be kept to a minimum, if it’s needed at all,” says Dr Wonnacott.

“And the benefits to the industry and individual business are potentially huge. Greater efficiency means, ultimately, more productivity and profitability. So why would anyone want to wait for that to be forced on them? I’m sure that most, if not all, producers would like a slice of that pie now!” |

➔ *Download the DairyCo factsheets and case studies at [www.dairyco.org.uk](http://www.dairyco.org.uk)*