

The Dairy Group

For more information on any article contact Christine Pedersen on 07831 172940 or christine.pedersen@thedairygroup.co.uk



Net Zero

Richard Lane, Dairy Business Management Consultant

Net Zero is a hot topic and rightly so. Greenhouse gas emissions (GHG) are causing our climate to warm. Agriculture, including ruminant livestock was estimated to contribute approximately 10% of UK total GHG emissions in 2017. GHG emissions from agriculture fall into three main gasses:

GHG Emission Gas	Resulting from
Carbon dioxide (CO ₂)	energy consumption (fuel and electricity)
Methane (CH ₄)	enteric fermentation and manures
Nitrous oxide (N ₂ O)	manures and soil

Whilst most industries focus on reducing CO₂ emissions from fossil fuels, the challenge for agriculture is reducing CH₄ and N₂O. These are the two biggest sources of GHG from agriculture and are also more powerful and damaging than CO₂. Carbon dioxide provides the 'benchmark' for measuring all GHG damage which is referred to as carbon dioxide equivalent or CO_{2-e}, which is reported in a carbon footprint calculation.

Currently there are few milk contracts offering financial incentives to producers addressing GHG emissions but that is likely to change. As industry driven and government targets come into play, milk buyers will scrutinise their supply chain as they look to reduce GHG emissions. However, in many cases reducing GHG emissions will go hand in hand with improved farm profitability.

The two main areas of GHG emissions from UK dairy farms are enteric methane (40%) and feed sourcing (26%):

Enteric Methane – Microbial fibre digestion in the rumen creates methane. Increasing diet digestibility by including higher digestible forage, higher starch levels or increasing fatty acids can reduce methane. Several feed additives are under evaluation for their efficacy in decreasing CH₄ output with some claiming reductions of up to 30%.

Improved feed efficiency, fertility and health (reduced lameness, mastitis, other metabolic/infectious diseases), leading to lower replacement rates and fewer youngstock will reduce methane output. Heifers calving by 22-24 months can result in improved lifetime yields and a 6% reduction in GHG emissions compared to calving at 30 months. Improving herd genetics, sexed semen and genomics are key in increasing herd productivity.

Feed sourcing - emissions emanate from growing, storing, manufacturing, processing and transporting feeds. Soy and palm products have come under increased scrutiny due to deforestation concerns.

EDITORIAL

Welcome to our June 2021 newsletter.

The 1st article this month focuses on Net Zero and reducing greenhouse gas emissions from dairy. The Dairy Group has recently been awarded a fellowship from The Trehane Trust to produce a clear 'roadmap to Net Zero' for UK dairy farmers.

This spring has been particularly challenging for grazed herds with a combination of low night temperatures, strong drying winds and soiled gateways leading to a number of herds suffering with dry skin condition and severe teat chapping. The 2nd article looks at teat disinfectants.

The Dairy Group has embarked on an update of our dairy costings system MCI which includes a number of new features to help improve dairy herd management covered in the 3rd article.

Grants, maize cover crops, compound feed sourcing and new breeding indexes are included 'In Brief'.

As always, please contact us if you would like to know more about any of the topics featured.

Christine Pedersen

Other areas away from feeding include **plant nutrients**. Increasing use of clovers and other legumes increases home grown protein provision and reduces artificial fertiliser use leading to reductions in N₂O emissions. Timings and methods of slurry and manure applications is also key; targeting growing crops increases utilisation thereby reducing artificial nitrogen. Combined with analysis and precision application methods, N₂O emissions can be reduced.

Energy Use - Improving energy efficiency will result in reduced CO₂. Renewable energy is a great opportunity to address carbon balance, but the cost:benefit needs to be carefully considered.

Sequestration and soil carbon – this is an evolving science, subject to much debate, but carbon sequestration is likely to gain impact. A renewed focus on soil health with the aim of increasing soil carbon levels are other areas to explore.

There is no silver bullet, marginal gains over many areas are required to reduce the carbon footprint of dairy. Reducing GHG emissions is difficult as they result from complex and imperfectly understood biological processes. If we start by addressing areas we can manage, we can make significant progress towards both Net Zero and improving business profitability.

Richard provides nutrition, herd monitoring & business management advice, driving efficiency, reducing waste and improving animal welfare & environmental sustainability. Contact Richard on 07717 502505

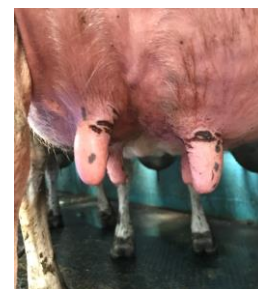


Teat skin condition challenges

Ian Ohnstad, Milking Technology Specialist

The application of a disinfectant to the teats of a cow immediately after milking is an essential component of any mastitis control strategy. As well as killing a significant proportion of pathogens and therefore helping control the spread of contagious mastitis pathogens such as *Staph.aureus* and *Strep.agalactiae*, the disinfectant has an important role in ensuring the teat remains soft and supple and is able to withstand the rigours of machine milking.

Irrespective of the active ingredient of the disinfectant, the level of skin conditioning agents included in the formulation, the cost of the product or whether it is delivered as a concentrate or a ready to use product, it can only be effective if it is applied to the whole of the teat. The most important feature of any post milking teat disinfectant is whether it is applied accurately, completely and consistently.



At the first sign of teat skin becoming dry (this can be easily assessed by running a clean latex gloved finger lightly down the teat surface before milking) action needs to be taken to ensure the dryness does not develop into teat chaps and open lesions. The first step is to ensure that sufficient product is being applied and that total teat coverage is being achieved.

A recent study by The Dairy Group confirmed that teat dipping provides the most comprehensive teat coverage whilst using the least product (see following table):

Method	Teat end coverage %	Teat barrel coverage %	Chemical use ml/ cow
Teat dipping	99	95	10.0
Teat spraying	94	50	15.2

However, these average results mask the variation that exists with each method, particularly the handheld sprayer. Although on average only 50% of teat barrels were covered, the range between study farms was 20 – 83%.

Once it has been confirmed that sufficient product is being used and total teat coverage is being achieved, the next step is to consider the level of skin conditioning agents in the product. When a skin condition problem emerges, we would normally recommend a ready to use product (RTU) rather than a concentrate, with a minimum 10% emollient (the majority of which should be glycerol). You should avoid adding additional emollient as it is very difficult to ensure consistent mixing and the additional emollient is unlikely to stay in suspension. You can also affect the efficacy of the prepared product.

Finally, if chaps or open lesions have developed, application of udder salve will be required. Avoid open tubs of udder salve which can quickly become contaminated and opt for an udder salve in an easy to administer tube.

Prevention is better than cure! Keep a close eye on skin condition and at the first sign of dryness assess coverage of disinfectant, compare usage rates and consider investing in a RTU product with > 10% glycerol.

Ian is an internationally recognised specialist in milking technology working throughout the UK and worldwide. He can be contacted on 07774 267900.



You can't manage what you don't measure!

Ian Powell, Managing Director

Whilst an old adage, it has never been truer! MCI has been web based for 20 years and provides an invaluable planning and monitoring resource for modern dairy businesses. As part of the current MCI update we have recently added two new modules to aid and improve dairy herd management; feed & forage and resource use. A new dashboard to display the key performance indicators "at a glance" has also been added:

Resources

Resource	Rolling	Benchmark
Stocking Rate (GLU/ha)	2.71	2.50
Water (litres per litre of milk)	4.0	5.0
Electricity (KW hours per litre of milk)	0.06	0.05
Fuel (litres per cow)	93	90

Margins

KPI	May 2021	Change vs May 2020	Rolling	Change vs May 2020
Herd MOFF (£)	51,442	4,370	475,841	9,032
Cow MOFF (£)	267	15	2,449	-79
Milk Price (p/l)	30.38	0.89	27.89	0.38
Milk Yield (l/cow)	972	-23	10,781	-495

Forage

Last Assessment Date: 01/04/2021

Crop Type	Fresh (t)	Dry (t)
Grass	207	62
Maize	413	124
Total	620	186

Herd

Herd	Latest Month	Change vs Last Year	Rolling
Cows in Herd	193	6	195
Culling Rate %			22

Other Livestock

Livestock	May 2021	Rolling
Dairy Heifers 0-12 Months	40	40

Feed

KPI	May 2021	Change vs May 2020	Rolling	Change vs May 2020
Concentrate Cost (£/t)	£210	£15	£189	£2
Feed Rate (kg/l)	0.14	-0.07	0.27	-0.01
Feed Cost (p/l)	2.95	-1.23	5.22	0.10
Milk From Forage (l/cow)	25	5	5,340	-132

Feed & forage: This is another year when forage planning is essential as the spring weather has played havoc with grass growth and harvesting and maize establishment. The forage planning module allows the user to calculate the stocks of silage on the farm and then create a plan for the year ahead in terms of what stock to feed, the planned crops to harvest, the anticipated yield and the monthly forage stock balance going forward. The plan would typically be 12 months but can be longer if required. The plan works in tonnes of dry matter due to the great variation in silage dry matter. The plan can be monitored, which would best be done monthly from measured silage stocks on the farm and can be updated after major harvests of grass, wholecrop and maize.

Within the Feed & forage module there is also a relative feed value (RFV) calculator. Feed prices are volatile due to global demand and supply concerns, making it difficult for producers to determine which products offer the best value for money. The RFV calculator allows the user to compare different feeds on the basis of the energy and protein that they supply compared to rapeseed meal and barley, with the aim of using those feeds that have a cost below their relative value. Feed grade urea, rapeseed meal and other protein sources often represent better value than soya and many clients of The Dairy Group feed little or no soya at all.

Forages, wet concentrates, dry concentrates, blends and straights can be compared and there is also an option to add custom feeds alongside common products. Using the RFV calculator will direct the user towards the best value for money feeds, but will not formulate balanced rations, so diet options should be reviewed with your nutrition adviser.

Resource use: The use of resources is becoming even more important and especially in relation to Net Zero. This module includes the simple recording of electricity, fuel and fertiliser use so that the majority of records needed for carbon foot printing are available in one place. The bench marking of these resources indicates how your business compares and where improvements/savings can be made.

Whilst water is not directly included in a carbon footprint calculation, mains water is an expensive resource and leaks are common. Regularly recording water meters helps to identify when leaks occur and provides a benchmark with average use. For more information go to www.dairy-mci.com or contact the office on 01823 444488.

Ian is responsible for MCI, cost of production database & works with clients across southern England. Contact Ian on 07831 617952.

News in brief.....

Post Brexit grant funding – DEFRA are working to deliver various new funding schemes over the next few years including the Sustainable Farming Incentive (SFI). Those who applied to pilot SFI will be invited to apply for the scheme within 8 weeks from the opening date (late June) with the first pilot agreements going live from October 2021. Further information on the pilot schemes of the other two components of Environmental Land Management, namely Local Nature Recovery and Landscape Recovery, are due later in 2021.

Various environmental and woodland grants and incentives are currently open for applications. The most urgent of these is the Countryside Stewardship Mid Tier scheme with applications closing on **31 July 21**. This is still a very attractive scheme for some farmers with generous funding for land based options and capital items that protect water quality, air quality and maintain traditional boundaries. Application packs must be ordered by the **30 June 21**. There are also various private environmental schemes (e.g., utility companies, river catchments and net biodiversity gain schemes) worth considering.

Several other Defra schemes are due to open this year. Those of particular interest to dairy producers are likely be the Farming Equipment & Technology Fund (for smaller grants, similar to Countryside Productivity Small Grant scheme), the Farming Transformation Fund (for larger or more complicated investments, based on the Countryside Productivity Large Grant scheme) and the Slurry Investment Scheme (to upgrade storage and reduce the risk of pollution). Please speak to your consultant to explore options.

Maize cover crops – planting a cover crop after maize harvest is an established and recommended practice to avoid bare soils over winter. The benefits of cover crops are well known to reduce the risk of soil erosion and nutrient loss over winter (resulting in a lower fertiliser requirement in the next crop) and increase soil organic matter. Depending on cover crop choice and the following spring sown crop, there may be potential to graze or take an early silage cut.

The earlier cover crops can be established, the more productive they will be and research shows that less nutrient is leached from soils under early established crops. Undersowing cover crops into maize in June or July is even more successful in retaining soil and nutrients. The greatest success occurs when the grass is planted between the maize rows at the 4-8 leaf stage (depending on weed treatments) using specific inter row sowing machinery. Tall fescue, perennial or Italian ryegrasses or Westerwolds are all options to consider. To avoid compromising the maize crop you should discuss options and timing for undersowing with your agronomist. This will ensure that competition is reduced for the maize crop and also avoid potential herbicide issues.

Compound feed sourcing - the competitive tendering process means that clients using dairy compound sourced through our feed groups typically make £20 - £30/t savings. Our feed groups source a range of compound feeds (14% to 24% crude protein, high starch and high fibre options) suitable for most production systems. The high quality specified for each product is maintained as we carry out independent laboratory analysis from random samples. Please ask your consultant for more information – the next tender period will be for autumn/winter 2021/22.

New breeding indexes - The Healthy Cow index has been introduced to reflect the role that good genetics plays in animal health and welfare. It combines ten health or health-related traits into one index that will identify superior transmitters of overall health to their daughters. These traits are still visible individually for anyone waiting to hone in on a particular trait or traits but the single figure, expressed in £'s, represents the financial saving each bull is predicted to pass to his daughters through better health over their lifetime. The nominal range is around -£400 to +£400 with the best bull in this genomic proof run on +£393.

Gestation Length provides a prediction of the number of days greater than or less than breed average that a cow will gestate for any given bull. The nominal range is -5 to +5 (days) although the majority fall within -3 to +3 with the negative figure indicating a shorter interval. For more information on breeding please contact Kevin Lane on 07770 923344 or kevin.lane@thedairygroup.co.uk

The Dairy Group consultants work across the UK providing a wide range of independent dairy technical and business advice. Please contact Karen or Anne in our admin team on 01823 444488 or visit our website for further information or to contact our consultants.

Website: www.thedairygroup.co.uk,

Email: enquiries@thedairygroup.co.uk
Dairy Herd Decision Support: www.dairy-mci.com

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