

BUSINESS Clinic

Continual improvement in margins is a discipline required by all dairy producers, but in practice can be a difficult balancing act:

In the third in our series on dairy financial performance, we explore ways to improve dairy margins.

National viewpoint: Performance is improving, but what about margins?

The latest results for the average UK Promar Milkfinder herds up to the end of March 2019

demonstrate continued progress in terms of physical performance and efficiency per cow, according to national consultancy manager Nigel Davies.

He says: "Compared to the previous March, during which farmers in some parts of the country were facing some really challenging weather conditions, these herds produced an average of more than one litre per cow per day extra at better milk protein percentages and with a reduced feed rate down to 0.34kg/litre from 0.36kg/litre.

"In the month, they produced more for less.

"Over the whole year to March, these herds produced 210 litres more per cow while maintaining their annual feed rate at 0.33kg/litre.

Feed

"In effect, over the year they have produced more from the same.

"However, what is striking is that despite this sustained progress in physical performance, annual MOPF per cow has fallen by £22 to an average of £1,768 per cow.

"This is not because of any material change in the rolling milk



price, which shows a marginal gain over the period, but because feed of all types has cost more.

"So much so that the 12-month rolling average feed price for the group was 8.35ppl [28.1% of milk price] at the end of March 2019 compared to 7.5ppl [25.3%] at the end of March 2018.

"The question now is what will happen in coming months and indeed over the coming year?

"At the time of writing, we are eagerly awaiting initial silage analyses, but expectations are high and, along with the continued genetic gain and better focus on management, we would expect the positive trend in physical performance to continue.

"Being similarly confident on the trend for feed prices is more

challenging, as external forces such as a reduced demand for protein in the Far East and sensitivity to exchange rate changes have an impact.

"While prices of several commodities have been weakening in recent weeks, they have also had days when adverse exchange movement has pushed them higher by as much as £10/tonne.

"All this is heightened by the potential impact of the sort of withdrawal from the EU we end up with, or not, as the case may be.

Forward buying

"A resultant weaker pound against the euro and dollar at any stage will push up many commodity prices.

"Giving detailed consideration now to buying forward, and locking in at least some of your feed requirement for the next 12 months, is good management practice.

"To inform that decision, discussions should be held with a number of merchants as well as your independent advisers, especially as forward feed prices at the time of writing show relatively small upside to spot prices.

"In addition, the current oil price at \$61 per barrel is notably less than it was for much of 2018, when it peaked at more than \$80, but it could move up again."



"Our recent Promar Milkfinder results have made encouraging reading, with yield per cow increasing, while feed rate per litre has decreased.

However, feed cost per litre has increased, so this is something my consultant Emma Thompson and I are challenging.

How can we bring down purchased feed cost per cow and so control our biggest single cost, currently running at just shy of £900/cow?

We are approaching this in three ways: feed usage, feed cost, and the system.

Starting with feed use, I talked last month about our drive to produce better quality forage by taking control of all aspects of silaging.

By the end of May, we had taken two cuts and quality is good with first cut already delivering well in the ration.

Target

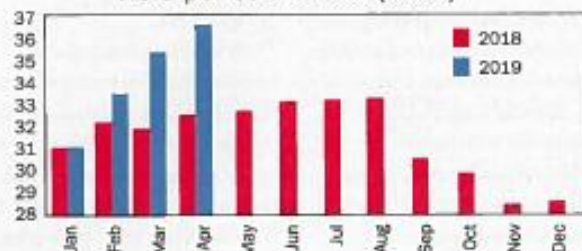
Our target is that the better forage will allow us to feed 1kg/cow/day less concentrate. If we can achieve this, we will be saving about £65 per cow, or £29,000 for the herd.

But we will need to look closely at the total cost of feeding cows, including both purchased feed costs and forage costs.

Farmer viewpoint: We will continue to see how we can challenge feed costs

Key performance data at Fairy's Lodge Farm

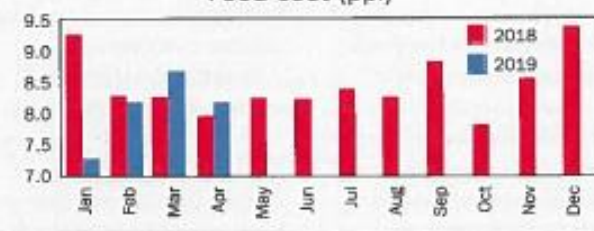
Yield per cow in-milk (litres)



Feed rate (kg/litre)



Feed cost (ppl)



took the decision to simplify this last year.

We had been feeding two blends – one for protein and one for energy – but have moved to a single blend which is used in the diets for all stock on-farm.

This has increased our purchasing power while saving time when feeding, and taken out an unnecessary level of complication.

Only having one blend will also reduce day-to-day variation in feed presentation, because you are only adding one ingredient. Using the Keenan PACE system, we will be able to monitor the mix closely too.

Intakes

The other big system change we made was to split groups to reduce standing time.

With groups of 180 cows, they were spending too long away from feed. If we want to increase forage use, it was going to be essential to drive intakes. Increasing access times would be part of this.

By reducing group size to 90, we have shortened standing time by 45 minutes per group per day, which is already having an impact on forage intakes and helping us achieve our reduction of 1kg concentrates per day.

As well as tackling big cost areas, I am a firm believer everything can be done better

Fairy's Lodge Farm

- ▶▶ 457 cows
- ▶▶ All-year-round calved and housed
- ▶▶ Milked three times-a-day
- ▶▶ Average yield per cow of 10,169 litres
- ▶▶ Concentrate feed rate of 0.4kg/litre

and that small savings mount up.

For example, we bed cows on sawdust, but felt too much was being brushed out every day with the brush attached to the sawdust dispenser.

As well as wasting bedding, we were not building up a reserve in the cubicles.

When we changed the cow grouping, we moved to manually brushing out the cubicles before bedding down again. This meant we only brushed out the sawdust which needed to be removed and this has saved us £15/week in bedding costs. That adds up to nearly £800/year.

We now have a delivery every eight-and-a-half weeks as opposed to every seven, which will save us time as well.

If my team and I can identify a similar saving every month, then we will be saving nearly £10,000 a year.

Regarding feed costs, I have just forward-purchased my blends for the next 12 months and will be saving about £10/tonne on my current price, which will reduce my annual blend bill by £18,000.

With raw materials where they are, we felt it was a good time to commit.

We are insulated against any rise in ingredient prices, but some will say that prices could continue to fall. This is true, but equally, pressure on oil prices, any exchange rate

impact from leaving the EU, and the potential for a poor soya or cereals harvest could all move prices the other way.

An added benefit of locking in is that it gives me one less thing to have to think about, and I do not need to be constantly watching feed prices.

I am happy knowing where we are going to be, have certainty and can now budget more closely.

The third area where we hope to make an impact on costs is our system, and we

Next month's Business Clinic

- ▶▶ We look at how management changes being put in place are starting to curtail that potential erosion of dairy margins.

BUSINESS Clinic

Continual improvement in margins is a discipline required by all dairy producers, but can be a difficult balancing act. In the next in our series, we explore trends in dairy margins and consider prospects looking forward with Promar.

National viewpoint: Now is the perfect time to start planning for winter



» With our Promar Milkfinder results to June now available, it is encouraging to see margins continuing to head in the right direction, in part reflecting our drive for better quality forage and also our success in reducing concentrate price per tonne.

Yields continue to move forward while feed rates have been trimmed back, and we are controlling feed costs.

Having only been in dairying for a little over five years, we have been constantly looking to review how we carry out every task, striving to improve efficiency and manage our cost base. We don't have any preconceived ideas and are open to any suggestions.

While margins are a great high level benchmark, they mask a lot about how they are achieved. This is something we are focusing on with our Promar consultant Emma Thompson.

Change

I have talked before about reducing group sizes to cut standing time per cow and increase the time they can spend at the feed trough.

Initially we thought groups of 180 would be optimum, but we now work on groups of 90.

Since we made the change, we have seen dry matter intakes increase by 0.5kg/day,

Taking the time to review your autumn feeding regime now will help drive efficiencies this winter, according to Promar's Nigel Davies.

It is easier to plan management changes well in advance than apply them on the hoof in a reactionary manner, and so now is a good time to plan for November rather than waiting for Halloween.

The first step is to set targets so you know what you are aiming to achieve.

Quality

What were your key performance indicators last November, was it for example milk per cow per day, concentrate use per litre etc?

Given what you already know about the quality and quantity of first cut silage, what should be the target for those same parameters this November?

Understanding these



numbers now will increase the focus on making the most of the opportunity or mitigating any challenges.

In terms of achieving greater efficiency, what is there that you can do less of this November?

Increasingly, we are seeing producers using fewer ingredients in their winter feed than they used to, and rather than having two or three different diets for different groups

of cows, just have the one ration for all cows, reducing complexity and time.

Not only have they minimised the variation in concentrates, they have also constructed management systems which minimise the variation in the forage component, minimising the chopping and changing between different clamps and so on. Diets are planned to minimise change and increase consistency.

The rolling results of the top 20% Milkfinder herds up to April 2019 compared to the average herds during the same period show the impact of this type of change. (See Table).

They have a lower concentrate price per tonne and lower 'other feed cost per cow' (for example brewers' grains), than the average herds, but still achieve a superior MOPF per cow.

There is often a tendency to over-complicate systems, to commit to doing more things rather than doing less things, because it can be easier to add things than taking them away.

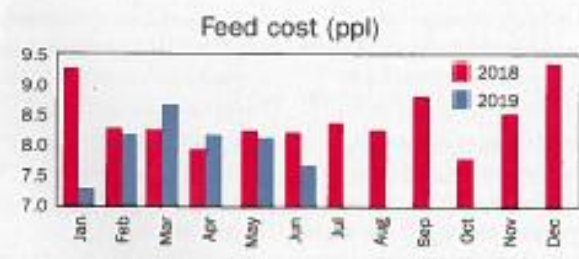
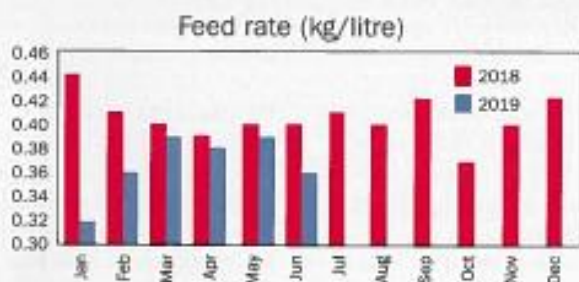
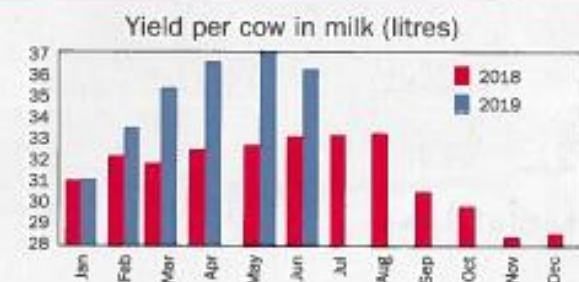
Which is why now is the time to determine what you can commit to doing better this winter, and decide who is best placed to advise you.

Table: Comparison of Milkfinder rolling results ranked on MOPF to April 2019

	Top 20%	Average
Concentrate price (£/t)	£241	£243
Other feed cost (£/cow)	£12	£23
MOPF per cow (£)	£2167	£1780

Farmer viewpoint: Margins are good, but they only tell part of the story

Key performance data at Fairy's Lodge Farm



“One change we considered, but decided against, is moving to feeding once a day

OLIVER WILLIAMS

If we were feeding two blends, this would add up to 100kg additional feed per day, compared to just 50kg with one feed. It does not sound a lot, but 50kg/day is 18 tonnes a year, worth more than £4000.

Elements

One change we considered, but decided against, is moving to feeding once a day. We would save around an hour a day if we made the move, which would be £25/day in saved labour and machinery running costs, or £9000 per year.

The problem is that we have external feed troughs, meaning feed is open to the elements. On hot days feed can dry out, while when it rains the dry matter of the diet is reduced.

Both of these affect appetite

Fairy's Lodge Farm

- ▶▶ 465 cows
- ▶▶ All-year-round calved and housed
- ▶▶ Milked three times a day
- ▶▶ Average yield per cow of 10,642 litres
- ▶▶ Concentrate feed rate of 0.39kg/litre

and dry matter intakes and would compromise milk yields.

By feeding twice a day, the impact can be managed better.

The potential £25/day saving by moving to once a day would be wiped out if, as a result, yields dropped back by just 0.2 litres/cow.

You can argue that for a significant proportion of the year the weather won't affect the feed, so on average the benefit of saved time will be achieved.

But on balance we decided not to change feeding frequency, not least as our major objective this year is to drive milk from forage and to reduce purchased feed costs, which makes consistent high dry matter intakes vital.

However, we will keep it under review.

I was once told the seven most dangerous words in farming are 'we have always done it this way'. Those are not words you will hear here.

resulting in a yield increase of 0.75litres/cow/day, which is a great return for a change in work routine.

The herd is 100% TMR fed and we were feeding an energy blend and a protein blend, but have now switched to a single blend. While this has not saved us any time loading up and feeding the cows, there have been other benefits.

It makes stock control and ordering easier as instead of two loads of protein per month and three loads of the energy blend,

we just have one 28t delivery every six days.

Having a single blend also means we can react more quickly to how the diet is performing. If we need to change the blend composition, the new blend is in the diet in a maximum of six days, improving the accuracy of rationing.

Accuracy is also better as we are only adding one ingredient. Even with accurate weigh scales, it is not difficult to be 50kg/day out on inclusion rates per ingredient over the 400 cows.

Next month's Business Clinic

▶▶ We will be looking at the impact better fertility management is having on production and margins.

Make the most of first-cut silage opportunity

Producers should be gearing up to exploit this year's top-quality silage and take the chance to reduce their bought-in feed bill.

We take a look at how best to go about it.

TEXT RACHAEL PORTER

This year's first cut is, as they say, 'a bit of alright'. And Devon-based Promar consultant Sue Bryan is certainly excited about producers' prospects this coming winter. "Some have made silage that's like rocket fuel. But more typically it's just really good. There's plenty to be positive about, going into the coming winter," she says.

And, she stresses, the exceptional and balanced crop is an opportunity not to be missed. "This year there are no excuses. Yields are typically good and there's little wet or acidic silage. It's all come together for many producers." With more than 650 samples now analysed, first cut silage certainly has the 'wow' factor. Trouw Nutrition GB's Liz Homer says that samples have been received considerably earlier this year, reflecting the growing

season and a swing towards multi-cut systems. The 2019 season is roughly two weeks ahead of 2018, with the first samples arriving in late April, and numbers dropped back during June. "The good weather and better early growth will have contributed to this and we know that many more producers have opted to take more cuts, bringing the first-cut date forward," she explains.

Dr Homer adds that the early samples were well fermented, but characterised by higher NDF and lignin compared to the general dataset – an indicator of a higher proportion of more mature grass.

But, overall, she says first cuts analysed so far are well fermented with higher dry matters, a result of optimal harvesting conditions. And sugar content is higher.

"Dry matter is 34.1%, compared to 31.2% in 2018, and



lactic acid is lower which is what we would expect with a drier crop.

Looking at the nutritional analysis (see Table 1), Dr Homer says that average ME content is higher at 11.5MJ/kg DM than it was in 2018. Crude protein is marginally lower at 15.4%. The intake potential of this year's crop is also higher, up from 97.3g/kg metabolic liveweight in 2018 to 106.4g/kg metabolic liveweight this year. "This means that cows should be enthusiastic about eating more silage – good news where there's plenty of first and second cuts. If there's also a heavy third cut, producers will be able to increase the proportion of grass silage in the winter diet."

Palatable silage

Mrs Bryan says that for producers who are happy with milk yields, this year's grass silage represents an opportunity to cut back on bought-in feeds and realise more milk from forage. "Whatever your milk production goals, grass silage can produce more of it this winter. Cows are designed to eat forage, so let them show you what they can do when fed a top-quality, palatable silage." This year offers many producers the opportunity to take a typical winter ration, comprising grass silage and 4kg of blend, and reduce the latter by 1kg. "This should be replaced with 4kg fresh weight of grass silage. And it's key to ensure that the cows are, indeed, eating all that dry matter," she says.

"And that's not just about rationing and mixing the feed correctly. The cows also require good access to the feed – 24/7. Good feed fence design and space, and regular push ups, are essential. Aim for residuals of between 3% and 4% – the average is between 5% and 8%. This is what should be left at the feed fence at between 4am and 5am." To target the herd's optimal intake, Mrs Bryan says that it's important to capitalise on the cows' natural herd behaviour: "Can they all eat at once? Is there still plenty of space and opportunity for shy animals and those with poorer locomotion to get to the feed fence?"

"Producers need to manipulate the cow environment to offer every opportunity for the cows to access feed – and for them to want to eat. So minimise the time that cows are standing around waiting to be milked – possibly milk half the herd at a time. It's all about ensuring that she has the time, space and opportunity to eat until she's full. "Never give her an excuse not to eat – ensure that feed is palatable and readily available. She should be eating when she's not being milked, chewing the cud or sleeping. So watch your cow flow and behaviour, and look for any possible 'bottle necks'."

Also keep a close eye on dung, particularly if their silage is a little 'hot'. "Some producers may need to add a little chopped straw or hay to their rations to prevent it from flying through the rumen quicker than they can feed it. Promar's Mrs Bryan recommends a 'muzzle width' chop and to add straw, incrementally as required, at a rate of 0.25kg per head. "We want the silage to sit in the rumen and form a 'mat' for the rumen bugs to work on. Some may need to 'cool down' their rations by adding straw. Just a little at first and then more if you need to."

Sugarbeet pulp or soya hulls can also help to slow down the rate of rumen passage. "Your cows – or rather their

	average 2019	average 2018
dry matter (%)	34.1	31.2
pH	4.3	4.2
NH ₃ of total N (%DM)	3.2	3.1
VFA (g/kg DM)	18.9	18.5
lactic acid (g/kg DM)	74.2	90.9
crude protein (%DM)	15.4	15.9
D value (%DM)	71.8	70.6
ME (MJ/kg DM)	11.5	11.3
sugar (%DM)	3.1	2.3
NDF (%DM)	45.8	45.1
lignin (g/kg DM)	35.2	26.3
ash (%DM)	8.9	8.8

Table 1: Early first-cut grass silage average 2019 (source TNGB)



Liz Homer, consultant:
"The intake potential of this year's crop is higher"

dung and milk yield – are the best guide. And check cudding rates. Buy a cheap kitchen sieve and rinse a sample of dung. If the feed ingredients look undigested, the ration is passing through the rumen too quickly." She says the key to feeding cows any ration, in any given year, is to look for cow signals. "The ration may read well on paper and be well presented at the feed fence. But look at how the cows are responding to it. "It doesn't take a complicated computer programme or a degree in ruminant nutrition to see if there's undigested feed."

Good operators

Mrs Bryan also stresses that to get the most from silage this year, the person mixing the ration needs to be 'on the ball'. "If the extra forage and straw in the ration take the wagon above its mixing load limit, good operators will do two mixes. They won't cut corners, overload the mixer and compromise the quality of the mix. Remember, what's formulated on paper needs to be what's mixed, fed out and consumed by the cows." And if it does work, there are considerable cost savings to be made – in the region of 25p per cow per day for a typical dairy herd. For 100 cows that's £25 per day. Multiply that by a 180-day winter and that's £4,500. For a 200-cow herd, that's £9,000. "I'd really like to see concentrate feed rates falling away on many UK units this winter," she adds. "Silage quality is rarely this good – and seldom available in these quantities. I'm hoping lots of producers capitalise on this opportunity."



Sue Bryan, consultant:
"Ensure that feed is palatable and readily available"

SERIES CARBON FOOTPRINT

Here, in the first of a series of five articles, we take a look at how to calculate the carbon footprint of your unit and what that information means for your business, your herd and the environment.

- Part 1 Assessing your herd's carbon footprint**
- Part 2 Improving feed efficiency to reduce nitrogen losses and CH₄ emissions
- Part 3 Grassland management to improve nitrogen utilisation, losses and increase sequestration
- Part 4 Manure management to reduce ammonia and N₂O emissions and nitrogen losses.
- Part 5 Breeding to reduce the carbon footprint

Footprint focus

With the environmental impact of dairying coming under increasing scrutiny, we ask: what is a carbon footprint and which greenhouse gases should producers be aiming to reduce – and how?

TEXT RACHAEL PORTER

Contrary to popular belief, even though cows do emit methane, and milk production does have a significant carbon footprint, dairying is by no means the 'bad guy' it's painted to be when it comes to greenhouse gas (GHG) emissions and global warming. It's certainly a contributor though. Dairying accounts for 30% of the UK's total GHG emissions. But, according to several scientists and industry specialists, dairying – and particularly the associated grassland production – could be part of the solution, and not the problem, when it comes to sustainable food production, soil health and, indeed, protecting the environment. That's certainly the view of Promar's head of sustainability Tom Gill, who adds that the starting point is knowing the collective carbon footprint (CF) of dairying – as well as that of your particular unit – and then working towards reducing it and offsetting or 'mitigating' GHG emissions.

GHG emissions

Dairying's key GHG emissions comprise CO₂ (carbon dioxide), CH₄ (methane) and N₂O (nitrous oxide). The latter persists in the atmosphere for decades and has the highest global warming potential (GWP) of the three. All three are

produced and emitted by the cow through belching, urine and faeces. Other emissions from dairy, that are also the focus of reduction plans, include nitrate and ammonia – both are excreted through faeces and urine. Steps to improve feed efficiency, as well as grassland and manure management, will go a long way towards reducing these GHG emissions. Cattle breeding also has a key role to play in reducing the CF of UK dairy herds. Cows with a higher feed conversion efficiency will convert more nitrogen into milk, and they'll also belch out less methane. Mr Gill says that the target recently set by UK government, for net zero carbon emissions by 2050 in a bid to end the UK's contribution to climate change, was a bold step. "This will be impossible for some industries, without some mitigation further along the supply chain." He cites the energy, fuel, concrete and tarmac industries: "They're going to have a serious challenge to meet net zero obligations because they're using finite natural resources, and once used these cannot be replenished. And it won't be easy for dairy producers to hit the target either. But the cyclical nature of dairy, through the methane/carbon cycle, means, if we take the whole process into account, from producing milk through to processing and packaging, it

Dairy carbon footprint facts

- UK dairy cow population has fallen from around 2.2 million in 2001 to around 1.9 million in 2018.
- UK total milk production has increased from around 14.5 million litres in 2001 to around 15 million litres in 2018. Average yield per cow has increased from 6,449 litres in 2001/2002 to 7,825 in 2017/2018, according to AHDB Dairy's 2019 figures.
- GHG emissions from dairy include: CO₂ and

CH₄ (methane). The latter is the result of belching and enteric fermentation. Improved rumen function will reduce CH₄ emissions – and improve feed conversion efficiency (FCE).

- Methane emissions from enteric fermentation in cattle has decreased from 22 million tonnes in 1990 to 19 million tonnes in 2015.
- Nitrate, ammonia, methane and nitrous oxide are also emitted via urine and faeces.

The latter (N₂O) is a particularly potent GHG, with an extremely high global warming potential compared to methane and carbon dioxide, but emissions of this gas have fallen from 19 million tonnes to 15 million tonnes during the past 20 years, due to reductions in use of inorganic fertiliser, improved soil management, and new cultivation techniques (zero till/no till) which keep N₂O in the ground.



Tom Gill:

“Reducing your CF will result in a more robust business”

could be possible. There can be mitigations along the supply chain; but it would need to be a joined up, team effort.

“Many producers will need to consider significant change within their businesses to reduce their CF to 0.6kg of carbon per litre. The current average is closer to 1.2kg per litre. But as part of an integrated food chain, it would be possible for the dairy industry, as a whole, to produce what would technically be carbon-neutral milk once it hit supermarket shelves.”

The good news is that AHDB Dairy figures show that producers have, on average, already improved their CF. And Defra’s GHG inventory for UK dairy herds also shows an improvement, reporting a fall in emissions for milk production – driven by improved feed conversion efficiency – during the past five years. “Latest data on the UK dairy herd average CF, from AHDB Dairy’s report in 2012/13, is still pretty robust,” says Mr Gill. “But where milk buyers are auditing and incentivising producers, it could well be below the 1.2kg per litre average.”

Reducing carbon footprint

The development of high-sugar grass varieties and mixtures with improved feed values has helped to improve feed conversion efficiency and reduce GHG emissions. And a greater awareness of the benefits of reseeded grass leys and good soil and manure management, have also played a role in reducing the CF of dairying during the past decade. Lands – particularly grassland – is great way to ‘lock up’ and sequester carbon.

“There are also fewer cows being milked in the UK, but average yields have increased, with milk being produced more efficiently in terms of feed conversion. There’s a definite drive to improve cow longevity with better health and fertility. These all contribute to reducing the CF.” Continuing to improve the carbon footprint of the UK dairy herd will be a challenge. “But it’s exciting and opens up the possibility of herds become more efficient than ever before,” says Mr Gill.

So how do producers measure the carbon footprint of their herd and unit? “There’s plenty of advice out there to help take the mystery out of measuring your CF which, on the surface, is quite a complex thing to measure,” he adds.

Promar, AlltechE-CO₂, AB Sustain and Farm Carbon Footprint (based in the south west), all offer services to help producers carry out a CF ‘lifecycle assessment’.

“And producers who want to do it themselves can go on line and use the free Cool Farm tool – which is a greenhouse gas, water, and biodiversity calculator.”

But Mr Gill stresses that the starting point is to know your CF and your key contributors. “And any work or investment that reduces GHG emissions and your herd’s CF will result in a more sustainable and financially-robust business, and a greener management system that’s better able to meet any future environmental requirements.” |