

# County Durham family named Milkfinder manager of the year

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Farmers Weekly Reporters

The Pounder family of Stainton Hill Farm, County Durham, were awarded the Milkfinder Manager of the Year award 2017 at UK Dairy Day.

Andrew and Pam Pounder, who run a 200-cow Holstein Friesian herd averaging 9,226 litres, with 4.19% butterfat and 3.3% protein, overcame tough competition from two other regional finalists to be recognised as top in their field.



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The family impressed judge James Dunn, Promar's managing director, with their attention to detail and clear succession plan.

See also: [Succession prompts switch from mixed farming to dairy](#)

"Andrew knows his business inside and out, and his attention to detail sees impressive results being realised on farm. Grassland management is one of Andrew's strong points, which was further acknowledged when he was named a finalist in this year's British Grassland Society competition," said Mr Dunn.

The herd yields 4,754 litres from forage, which represents about 55% of the total milk yield – way above the recommended starting point of 30%.

Most recently, the third-generation farmers, which includes Andrew's parents, John and Margaret, and Pam's father, Dennis, have made 21-year-old Scott a partner in the business, with each generation playing equal roles in key areas and all being involved in big business decisions.

Runners-up were:

- Finalists and regional winners (South) – FJ and RF Banfield, Westwood Farm, Wiltshire
- Finalist and regional winner (Midlands) – IG Evans, Halton Farm, Wrexham.

## Family farm wins milk manager of the year

A DAIRY farmer in County Durham has been named Milkminster Manager of the Year 2017.

The Pounder family, of Stainton Hill Farm, near Barnard Castle, won the award at UK Dairy Day. Andrew and Pam Pounder, who run a 200-cow Holstein Friesian herd, averaging 9,226 litres, with 4.19 per cent butterfat and 3.3 per cent protein, overcame tough competition from two other regional finalists to be recognised as top of their field.

The family impressed judge James Dunn, Promar's managing director, with their attention to detail and clear succession plan. "Andrew knows his business inside and out, and his attention to detail sees impressive results being realised on farm.

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From left, James Dunn, of Promar, Pam and Andrew Pounder, winners of Milkminster Manager of the Year 2017

every year. The herd currently yields 4,754 litres from forage, which represents about 55 per cent of the total milk yield.

"This is a significant figure and well above our recommended starting point of 30 per cent."

James stressed that in a volatile market, risk spreading and forward planning are essential

for farm businesses to be sustainable.

He said: "Andrew and Pam have been careful with investment in recent years, prioritising areas where it's needed most.

"A consistent milk price received from Embleton Hall Dairies, combined with careful investment, has seen the farm succeed through recent trouble-

some times, with margin over purchased feed steadily improving."

James said that the future looks bright for the family farm of three generations, which includes Andrew's parents John and Margaret, Pam's father, Dennis, and 21-year-old son, Scott, who has been made a partner in the business.

"Andrew has taken a

proactive approach to farm succession, and he, Dennis and Scott play equal roles in key areas such as heat detection and cow health, while also making big business decisions as a family. "The Pounder family are very worthy winners, and we're pleased to be able to acknowledge their achievements as a successful dairy business," said James.

### Barnard Castle farmer wins Milkminster Manager of the Year

Barnard Castle farmer wins Milkminster Manager of the Year : From left, James Dunn, of Promar, Pam and Andrew Pounder, winners of Milkminster Manager of the Year 2017

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## UK DAIRY DAY PREVIEW

Promar's latest report shows that while returns may be seen to be increasing compared to a year ago, producers need to ensure at least part of this is the result of a higher order of underlying technical performance.

# Producers must strive to boost technical efficiency

**R**esults from Promar's Milkminster report for May 2017 suggest producers have continued to exhibit confidence by growing their herds in the last 12 months, with greatest growth reported in those herds at the top of their game.

Promar national consultancy manager Nigel Davies says: "Data from Milkminster shows the top 20% of herds by margin over purchased feed [MOPF] per cow have increased their average herd size by 13 cows or 5% in the last 12 months. This

**“Those herds in the top 20% can also attribute significantly better margins to their greater technical ability”**  
**Nigel Davies**



Nigel Davies: technical boost.

compares to the average national sample by MOPF per cow which has increased by four cows or 2% respectively." (See Table 1).

He believes this shows those businesses in the top 20% have greater confidence to grow their enterprises.

### Margins

"While milk price received ultimately has a considerable bearing on MOPF, those herds in the top 20% can also attribute significantly better margins to their greater technical ability."

However, he urges producers to look at where they can make further technical advancements because, in real terms, applying the same milk price and feed

**Table 1 - Herd size**

Annual average herd size (cows)	May 2016	May 2017	Difference
Milkminster top 20% by MOPF per cow	257	270	+13 (5%)
Milkminster national average by MOPF/cow	199	203	+4 (2%)

price in the year to May 2017 as in the year to May 2016, neither group has made a meaningful impact to improve MOPF per cow over the last 12 months. (See Table 2).

"When comparing the 2016 and 2017 data, in absolute terms, both groups improved MOPF per cow over the year, with the 'average' group making the largest gain, reflecting the varying trends in the milk price received by both groups in the last 12 months," says Mr Davies.

However, he adds the top 20% are still achieving significantly higher MOPF per cow compared to their peers.

"Looking at 12 months absolute performance to May 2017, for the top 20% and average herds, the MOPF for the top 20% outstrips the average by £411 per cow per annum, equating to £41,100 per 100 cows.

This is the kind of number which makes a difference to confidence," he adds. (See Table 3).

He explains how the difference is achieved. "Some £242 per cow stems from the fact the top 20% received a higher absolute milk price over the 12-month period compared to the average – a premium which has narrowed considerably in recent months. The remaining £169 per cow comes from achieving an improved technical performance compared to their peers.

"In this instance, comparing the two sets of numbers, the top 20% have sold 827 litres more for just an extra 212kg of purchased feed per cow. However, achieving this will have been about excellence at much more than just concentrate management. It will have involved a sustained focus on reproduction efficiency, cow health,

**Table 2 - MOPF differences for 2016/2017**

	MOPF per cow May 2016	MOPF per cow May 2017	Difference in MOPF per cow	Difference in real underlying terms
Milkminster National Average	£1,389	£1,485	+£96	-£25 i.e. a MOPF per cow of £1,364
Milkminster top 20% by MOPF per cow	£1,891	£1,896	-£5	-£32 i.e. a MOPF per cow of £1,864

(Difference in real underlying terms is measured as if the same milk price and purchased feed price applied as that received in the year to May 2016)



“For the next 12 months and the foreseeable future, milk price will most probably continue to fluctuate”  
Nigel Davies

soil health, teamwork, efficient forage usage, labour management and a whole host of other factors, including the ambition of the herd owner or manager.

“The decisions to implement herd size increases as seen over the last year may well have been taken some time ago at a more favourable stage of the milk

**Table 3 – Influence of better performance on same milk price**

May 2017	Milkminder National Average MOPF per cow	Milkminder top 20% by MOPF per cow	Difference in MOPF per cow
Absolute rolling annual MOPF per cow	£1,485	£1,896	+ £411
If same average milk price as achieved by the average group applied to both grps	£1,485	£1,653	+ £168
May 2016	Milkminder National Average MOPF per cow	Milkminder top 20% by MOPF per cow	Difference in MOPF per cow
Absolute rolling annual MOPF per cow	£1,389	£1,891	+£502
If same average milk price as achieved by average group applied to both grps	£1,389	£1,527	+ £138

price cycle, but it is the ability to repeat and sustain this improved performance year-on-year which instils the confidence to push on and grow the business, whatever happens to the milk price cycle,” claims Mr Davies.

“For the next 12 months and the foreseeable future, milk price will most probably continue to fluctuate for the various groups with an understandable impact on confidence and reward, but maintaining a ref-

reshed and sustained focus on continually improving underlying technical performance will always pay,” says Mr Davies.

If you are looking for advice, come along and meet the team at the Dairy Day stand.

The Scottish Farmer  
September 2017  
Nigel Davies

# Dairy confidence soars

MILK prices have been rising slowly but surely on a regular basis and so too are dairy cattle prices, with demand for fresh cows and heifers rising by anything from £250 to £400 per head since the start of the year.

With the August Actual Milk Price Equivalent (AMPE) at 40.1p per litre – up 9% on the month, and more than double the all time low point of 15.5p in April, 2016 – and values continually nudging upwards, most dairy sales are witnessing 100% clearance rates.

Add to that a shortage of available milking females to buy due to the fact that many producers A'd their cattle to a beef bull when prices plummeted, and a reduction in the number of cattle coming in from the continent, and confidence in the dairy sector appears to be rising.

“Everything is looking positive right up to the end of the year at least,” said Wright Marshall dairy auctioneer, Simon Lamb, who sells

## TRENDS

many of the cattle at Beeston Auction Mart.

“It's all about supply and demand and with the number of females coming forward for sale down on the year, due to TB and the increase in the use of beef sires two years ago, there are not the cattle available,” he said.

“Numbers at our collective sales at Beeston would be down roughly 10%. We haven't seen the dairy cattle coming in from the continent over the past six weeks either, as exchange rates are no longer in our favour.”

Previously, Mr Lamb said ‘hundreds’ of dairy cattle were being imported into the UK every month, which has now more or less dried up with the result being that Wright Marshall's last two big sales were ‘very, very dear.’

“Average prices for fresh heifers across all breeds and

all types, to include those with just three quarters, at our last sale were £1693 which is £250-£300 per head up since the start of the year,” he added pointing out that fresh cows look even dearer.

“Dairy farmers seem to go mad for anything giving 40 litres, to include second calvers right up to fifth and sixth calvers. Most cows will be up £300 since the beginning of the year and bottom end cows will be £400 dearer driven by the strong trade for barren or cast cows,” aid Mr Lamb, who pointed out that autumn calvers were also being sought after.

At the last mid-month sale at Beeston, 41 calved cows averaged £1667; 63 pedigree calved heifers levelled at £1791 and 38 unregistered calved heifers at £1526. This compares to the last month-end sale at the same market

By Patsy Hunter

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where 27 calved cows levelled at £1485 and 60 fresh heifers realised £1652.

It's been a similar story at Harrison and Hetherington's Borderway Mart, at Carlisle, where the last club sale met a 100% clearance and 44 lots sold at or above the £2000 mark. Overall, 61 fresh heifers averaged £2003 with 34 cows in milk at £1956.

How long the milk price and dairy cattle values will continue to rise, however, is another matter, with the latest data from Promar's Milkfinder costed dairy herds, pointing to an increase in herd size.

According to the figures, the top 20% of producers by margin over purchased feed (MOPF) per cow, have increased their average herd size by 5%, in comparison to the average performers of the national sample, which have increased by 2%.



(continued..)

Nigel Davies, Promar's consultancy manager, said this demonstrated a new positivity there in the sector, with the top 20% having greater confidence to grow their enterprises.

"While milk price received ultimately has a considerable bearing on MOPF, those herds in the top 20% can also attribute significantly better margins to their greater technical ability," he said.

"Looking at 12 months absolute performance to May 2017, the MOPF for the top 20% outstrips the average by £411 per cow per annum, equating to £41,100 per 100 cows.

"Breaking this down further, £242 per cow stems from the fact that the top 20% received a higher absolute milk price over the 12-month period compared to the average - a premium which has narrowed considerably in recent months.

"Importantly, however, the remaining £169 per cow, comes from achieving an improved technical performance compared to

their peers irrespective of milk price received," added Mr Davies.

"In physical terms, the top 20% have sold 827 litres more for just an extra 212kg of purchased feed per cow. This is the kind of superior performance that makes a difference to confidence."

However, he added that achieving this will have been about excellence at much more than just concentrate management. It will have involved a sustained focus on reproduction efficiency, cow health and a whole host of other factors, including the ambition of the herd owner and manager to be the best that they can be.

"Producers should really drill down into their figures to understand where improvements can be made. Using an industry benchmarking service, can also help to really highlight areas of focus for the greatest gains, and ultimately, give individuals the strength of confidence to progress and develop their farm businesses."

## Farmers Weekly Interactive (Online)

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Nigel Davies

### Top dairy farms expand more than average ones, study shows

Top dairy farms expand more than average ones, study shows : The top fifth of UK dairy farmers expanded their herd size by far more than average performers, according to consultant Promar.

Based on margin over purchased feed (MOPF), the top 20% of UK Promar costed herds increased their herd size by 5% in the year to May 2017, while the average grew herds by just 2% over the same period.

This was indicative of top herds having more confidence to expand, said Promar national consultancy manager, Nigel Davies.

"While milk price received ultimately has a considerable bearing on MOPF, those herds in the top 20% can also attribute significantly better margins to their greater technical ability," said Mr Davies.

In the 12 months to May 2017, herds in the top 20% for MOPF earned £411 a cow a year more than the average performers.

Despite £242 (59%) of the £411 a cow being attributable to higher absolute milk prices for those in the top 20% – usually from non-aligned contracts, the remaining £169 came from improved technical performance.

#### Superior performance

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Achieving this will have been about excellence at much more than just concentrate management – it will have involved a sustained focus on reproduction efficiency, cow health and a whole host of other factors, including the ambition of the herd owner and manager to be the best that they can be, added Mr Davies.

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# INFLUENCING AD FROM THE FARM GATE



*Anaerobic digestion (AD) is a method of energy generation increasing in popularity on farms, but there are potential issues that can impact on drinking water quality for water company initiatives. Here, Matt Brennan explains why influencing decisions through effective catchment management at ground-level, will help safeguard water quality downstream.*



**Matt Brennan**  
Senior environmental consultant,  
Promar International

AD is a process where organic matter, such as crops and animal and food waste, is broken down into biogas and biofertilizer, called digestate. The resulting digestate provides a valuable alternative to artificial fertilisers, but it is in every water company's best interests to ensure its application is being managed correctly.

If digestate is applied using ineffective application methods, for example a splash plate, and in the wrong place, at the wrong time then there is a high risk of valuable nutrients being lost to water. Therefore, encouraging better nitrate management on-farm does not only support the clean water objective, but is also a more efficient use of a valuable resource from the farmer's perspective.

Applying digestate correctly brings huge benefits on-farm, through more readily available nitrogen and therefore, a reduced requirement for artificial fertilisers, providing the farmer with a valuable saving.

However, there is a continuing need to support farmers to understand the potential negative impact of poorly managed digestate – particularly in Nitrate Vulnerable Zones (NVZ), where there are tight timing restrictions on applications.

Ensuring there is adequate storage on-farm is key, as an AD plant is a continual operation, and therefore produces digestate all year round. Managing large volumes of digestate with a limited land bank does pose real issues. It is essential to have the data to understand soil indices (N and P) on the intended recipient land for applying digestate otherwise pollution run-off will be exacerbated further. So, supporting the farmer in planning how best to manage and use this digestate - in some cases via export to other neighbouring farms - and ensuring they have the means to do this is important.

Digestate can form a valuable addition to the land, and crop. Through implementation of robust planning, which considers timing of applications and application technique, farmers can maximise nutrient intake, and minimise losses in the form of ammonia or nitrogen to the atmosphere.

Consideration should also be given to the feedstock grown for the AD plant, which can be vital soil health safeguarding. Traditional crops grown for AD, such as maize, can adversely

impact soil structure, and increase run-off if it isn't used within a rotation or undersown with a cover crop.

It is important to understand whether maize is a crop that a farm can viably produce, while also maintaining the structure of the soil.

## Advising farmers

Ultimately AD is a proven way to reduce a farm's environmental footprint – as slurry and manure applied to the land is one of the most significant contributors to emissions from agriculture.

There is a great opportunity for agri-food and water industries to work strategically together, looking at work in-catchment, and better utilising joint knowledge to ensure that the environment is impacted positively from technologies such as AD.

Through engagement at farm level, Promar can create a communication pathway on a range of topics, to ensure key messages are being understood. Working together with water industry partners to ensure that the correct measures are put in place at each stage of the project, to benefit all stakeholders.

Promar provides tailored advice and a range of services to public and private sector clients, to support catchment management activities and influence change at farm level.

For more information about how Promar can support you, please contact Matt Brennan on 01270 616800.



# Future Developments in Dairy Production

By C.S Mayne, C. Ferris and D. McConnell, Agri-Food and Biosciences Institute

The objective of this article is to review trends and developments in UK dairy production over the last twenty years, to highlight current challenges for the sector and to consider future developments in production systems. At the outset it is important to note the strong growth projected in global dairy product consumption, driven by population growth and diet change. In this context, global dairy demand is projected to increase from 500 million tonnes in 2010 to 1043 million tonnes by 2050 (FAO, 2009). Consequently, most economists are predicting a positive outlook for milk prices globally, in the medium term, although with the likelihood of significant year-to-year volatility. Within the UK there is also opportunity for increased production to meet UK consumer demand, with approximately £980m of dairy products imported annually, with significant deficits in cheese (£857m) and butter £122m (Defra, 2016).

## Trends in UK Dairying

*Dairy Herd Structure and Profitability* The major trends in UK dairying over the last number of decades can be summarised as follows:

- Reduction in herd numbers (35,700 herds in 1995 to 13,200 in 2015)
- Increase in herd size (72 cows/herd in 1995 to 142 in 2015)
- Increase in milk yield/cow (5400 l/cow in 1995 to 7900 l/cow in 2016)
- Reduction in total milk output over the period 1980-2010 (15.4 billion litres in 1980 to 13.4 billion litres in 2010)
- Increase in total milk output from 2010-2015 (13.4 billion litres in 2010 to 15.1 billion litres in 2015)

The number of dairy herds has reduced to almost one third over a twenty year period, whereas herd size has doubled, with the current average dairy herd around 142 cows (145 in England, 137 in Wales, 224 in Scotland and 114 in Northern Ireland; DEFRA, 2016). Whilst the total UK dairy herd has reduced from 2.6 million cows in 1995 to 1.9 million cows in 2015, milk yield/cow has increased by over 2500 litres over the same period, with the current average herd yield around 8000 litres/cow (DEFRA, 2016).

Structural change within the UK dairy industry has been driven by low farm profitability, with relatively low milk prices throughout the period from 1995-2009. Increases in milk price from 2010-2014 resulted in significant increases in profitability followed by major reductions during the downturn in 2015 and 2016. The increase in herd size has been accompanied by a significant increase in labour efficiency with milk yield/annual work unit increasing from 300,000 litres in 2005 to 425,000 litres in 2013 (Eurostat, 2017). Nonetheless labour productivity on UK dairy farms remains below that achieved on Dutch and Danish farms (IFCN, 2017).

## Feeding and Housing Systems

The major changes in feeding systems in recent years have involved increased reliance on housing and increased use of concentrate feed. In a survey of GB dairy herds, March *et al.* (2014) reported that 8% of dairy herds were housed full time, 37% of herds had all cows housed for at least part of the day during the summer period, 31% of herds used traditional outdoor summer and indoor winter systems, while only 1% of herds did not house cows at all.

Data from Promar Milkminster recorded herds indicates that whilst milk yield/cow has increased from 7500 litres to 8200 litres over the period 2004-2017, concentrate feed use increased from 2.18 to 2.7 t/cow over the same period. Consequently, there has been no change in milk production from forage (or grazed forage) in recent years. Given the low levels of profitability noted earlier, the lack of progress in increasing production from one of the cheapest feed sources available on most farms is surprising. Furthermore, analysis of both Promar Milkminster and Kingshay farm costing data indicates that currently milk production from forage is around 2500 litres/cow, which contrasts to values in excess of 4000 litres/cow which is being achieved on some farms.

Analysis of data from the AFBI Hillsborough Feed Information Service (HFIS), which has used the Feed-into-Milk feed rationing model since 1996, indicates little change in the feeding value of silage produced on farms in Northern Ireland over the last two decades (Yan, 2017). On average, the dry matter content of first cut silages increased from 220 g/kg to 270 g/kg over this period, and this was associated with improved silage fermentation characteristics (reduced ammonia and volatile fatty acid concentrations). However, there was no significant improvement in digestibility or predicted feeding value over the twenty year period, with milk-from-forage averaging only seven litres/cow/day.

Similarly in relation to grazed grass, which remains the cheapest feed available on the majority of UK dairy farms, little progress has been achieved in increasing production from pasture, other than on a small number of intensive, grass-based systems. This is despite the fact that research conducted in 2000 (Sayers *et al.*, 2003) demonstrated that well managed grazing, with appropriate concentrate supplementation, could support milk yields in excess of 30 litres/day throughout the grazing season.

The lack of progress in increasing production from forage within the UK dairy industry is of major concern, particularly in the context of increased reliance on cereal grains and imported protein feeds. The use of cereal grains as a feed for livestock is coming under increasing scrutiny, given the need to meet the food demands of an increasing global population. There is a need for a fundamental change in attitude to forage crop production on dairy farms to recognise the full cost and value of home grown forage. Key aspects which need to change include:

- Fundamental refocus of grass breeding systems to prioritise animal feeding value in place of a yield dominated approach.
- Refocus on soil and crop management to maximise grass quality.
- Development of harvesting and grazing systems to maximise production from forage.

Whilst forage maize will continue to have an important role in UK dairy production, alternative forages such as lucerne and red clover will have an increasing role. Further consideration also needs to be given to the potential for greater reliance on by-product feeds as a means of reducing reliance on cereal grains and imported protein feeds.

### Key Challenges and Future Trends in UK Dairying

One of the major challenges for the UK Dairy Industry is international competitiveness, particularly given the potential for increased global access to the UK food market post Brexit. Of particular concern is the wide range in technical efficiency at farm level, while the longer term financial viability of the lower quartile of farms, as classified on the basis of feed, labour and/or capital efficiency, must be questioned.

The UK dairy industry does however have excellent standards in animal welfare, product quality and a range of sustainability attributes. Given the increasing consumer interest in these areas, these must be maintained and enhanced.

the UK dairy industry is the need to minimise the environmental impact of milk production systems. In particular, impacts on water (nitrate and phosphorous) and air quality (greenhouse gases and ammonia) will come under increasing scrutiny. One of the opportunities which may develop post Brexit is the potential to develop a new UK agricultural policy which is evidence-based and tailored to specific local and regional conditions. A key component of this approach is the need for much better national metrics to define a range of sustainability parameters including assessments of water quality, biodiversity, animal health and welfare, greenhouse gas and ammonia emissions. It is essential that assessments of water quality and greenhouse gas and ammonia emissions are based on emission intensity per unit of production, to avoid production transfers to systems/regions with much higher emission intensity.

A key component of new agricultural policies should be the recognition that efficient farming systems also deliver significant environmental benefits. For example, analysis of dairy production benchmarking data in Northern Ireland (CAFRE, 2016) clearly indicates that the most efficient farms, on the basis of milk output/ concentrate input, have significantly lower phosphorous surpluses/ha (3.6-9.0 kg surplus P/ha) relative to the least efficient (12.6-17.9 kg surplus P/ha).

*Dairy Cow Genetics:* Selection indices for dairy cows within the UK have changed fundamentally over the last three decades with emphasis on production traits reducing from 100% in 1990 (the original PIN (profit Index) to 32% in 2017 (Profitable Life Time Index + mastitis). The current selection index is largely based on 'non-production' traits, and includes type traits, lifespan, somatic cell count, locomotion, fertility index, udder traits, maintenance cost and mastitis. The adoption of this more broadly based index has resulted in the reversal of a number of negative trends at national level. For example, dairy cow lifespan is now increasing, whereas milk somatic cell count is reducing. New advances in genetics such as genomic selection open up new opportunities for progress in other traits, for example disease resistance, but real progress requires accurate phenotypic databases with carefully co-ordinated national databases.

*Animal Health:* Bovine TB remains a major issue in many parts of the UK and control/eradication strategies have proved particularly challenging for this complex disease. However, new developments such as selection for resistance to TB infection (TB advantage) and the introduction of large scale badger vaccination strategies offer potential to address the problem. This would enable much more attention on some of the key



endemic diseases (BVD, IBR and Johnes) as well as addressing the increasing challenge of antimicrobial resistance. For the future, there is

**This article is based on the text of a paper presented by Dr Sinclair Mayne at the recent 50th anniversary conference of the Society of Feed Technologists**

also the potential for development of 'herd specific' or tailored breeding programmes to address specific herd health issues.

### New Technologies and UK Dairy Systems

Looking to the future, new technologies will fundamentally change virtually all aspects of UK dairy systems. Automated milking systems are commonplace on many farms and the level of automation is likely to accelerate eg automation of rotary parlours, feeding systems and manure management. Automation will also revolutionise grazing management systems with opportunities for automated grass measurement and budgeting systems, linked with cow location sensors leading to fence free grazing platforms.

Other current and ongoing developments will include the increasing application of sensor technologies to dairy systems. For example, sensor technologies are already developed to measure rumen pH and VFA patterns, body temperature, body condition, heart rate, gaseous emissions, chewing activity, lying and standing behaviour, locomotion and milk composition (via automated milking systems).

One of the major challenges which the industry faces is the analysis and interpretation of a vast array of individual cow data. There is an urgent need for co-ordination of technology providers in order to establish a one-stop database capable of collating and interpreting data at farm level. Ultimately, this approach will enable development of feeding and management systems designed to optimise individual cow performance, health and welfare in large herd situations. Such systems will require the development of dynamic, individual cow nutritional models which formulate diets on a daily basis based on the

cow's genetic merit, response to prior nutritional changes and current lactation, body condition, health and fertility status.

### Summary

There have been major changes in dairy farm structure over the last five decades and the trend to fewer, larger herds will continue, albeit at a

slower pace. Herds in the lower quartile of efficiency when classified on the basis of feed, labour and/or capital would appear to be particularly vulnerable. However, family dairy farms have shown a remarkable resilience and will continue to form the cornerstone of UK dairying.

Whilst milk yield/cow has increased by over 2500 litres/cow since 1995, the trend is unlikely to continue as increased management focus and genetic selection moves to non-production traits such as fertility, animal health and longevity.

There has been a surprising lack of progress in production from forage over the last three decades. This needs to change, and a renewed focus on forage will be driven by the need to reduce the environmental impact of dairy systems.

Automation of dairy systems will continue and will revolutionise future management by providing the opportunity to optimise cow performance, health and welfare in large herd situations.

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