



INDEPENDENT DAIRY SPECIALISTS

Dairy Costings Focus

ANNUAL REPORT 2018

Yearly trends

Milk from forage analysis

Regional analysis

Milking frequency analysis

Input price analysis

Milk yield and herd size bands

Channel Island and organic update

Welcome

For over 25 years Kingshay has been working with producers and the wider dairy industry, throughout the UK and further afield, to deliver well researched, independent, technical information and practical advice.

Driven by higher milk prices and volumes, dairy incomes in 2017/18 are much improved compared to the previous year – however it is important to note there will always be a wide variation, both with income received from milk as well as profitability of the dairy enterprise – so what is the key to profitable dairying?

Maximising efficient production continues to be crucial – but what is the most cost-effective dairy system? This question was addressed in our recent **Dairy Production Systems** report – which highlighted there is no right answer. No one system out performs all others – making best use of your

resources will inevitably drive efficiencies.

Manage the factors within your control and understand those beyond your control.

What are the top producers doing differently to achieve their outstanding results? The best farmers tend to run a simple focused system, having clearly defined goals which are shared with their team. They are open to change and new opportunities, taking time to invest in knowledge and share ideas with others. Key to making informed business decisions, the top farmers will know their costs of production and benchmark their business both against themselves and similar enterprises. With labour

availability one of the major challenges facing the industry, effective communication skills and investing in people set the best apart from the rest.

To take your business to the next level, Kingshay has the expertise, tools and services to drive your business forward, whatever your challenges. **Dairy Insight**, our new farmer membership package, combines your data and our technical information, to assist you in making informed business decisions to increase the profitability and efficiency of your dairy enterprise.

Our work is further supported by industry leading research that will be carried out at the new state-of-the-

art South West Dairy Development Centre, which is designed, built and operated by Kingshay with funding from Innovate UK through the Agri EPI Centre. This provides facilities enabling UK companies to develop and showcase new ideas and technologies to generate a vibrant and sustainable route to efficient milk production.

To find out more about **Dairy Insight** and Kingshay's other services please call our team on **01458 851555**, email **contact.us@kingshay.co.uk** or visit **www.kingshay.com**.

The Kingshay Team



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Introduction

The Dairy Costings Focus Report is widely known across the industry for in-depth analysis of recent trends and performance comparisons over multiple years. This year, we are pleased to once again present updated analysis along with some extra features, including some interesting trends on financial performance and milk composition.



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The least surprising observation is that milk prices, and therefore farm returns, have thankfully improved sharply over the past year but these have been coupled with higher feed costs. It remains as important as ever to keep a close eye on any potential areas for improved efficiency.

After two extremely challenging years, dairy producers will have welcomed the higher milk prices seen over the past year. Although prices have started to dip since their peak in November 2017, wholesale dairy product values have been on the up since January, so the market looks reasonably underpinned, with milk buyers now raising suppliers' prices once again.

Average GB Conventional milk prices averaged 28.7p/litre over the year, up 4.9p/

litre on the previous year. After slightly higher feed costs, the average margin over purchased feeds per litre increased by 4.34p/litre. The differential between the highest and lowest 10% of contracts – based on AHDB figures for level supply of a standard litre – widened slightly on the year, to 6.86p/litre, as non-aligned prices were affected by weaker global markets at the time.

Organic milk prices averaged 39.28p/litre in March, nearly 1.9p/litre up on the previous year, while Channel Island prices increased by nearly 28% to 35.18p/litre. As a result, Channel Island margins over purchased feed climbed by almost 33% to average 25.65p/litre, comparing favourably to conventional margins, at 21.21p/litre, but lagging behind organic returns of 29.14p/litre.

A notable feature of the past year has been the difficult weather conditions over the winter and spring, leading to increased concentrate use alongside higher feed prices. However, milk produced from forage remained similar to last year, at 2,542 litres – or 31% of total milk production – perhaps due to the close attention paid to forage while milk prices were low.

The gap between the top 25% of producers (ranked on margin over purchased feed per litre) and the average grew wider in 2018, with the top 25% producing 1,314 more litres from forage than the average group. There are clearly lessons that can be learnt from the top quartile of producers which could have a direct impact on the bottom line through reduced purchased feed costs.



Discover the benefits of Dairy Manager costings on pages 10 and 11.


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Trends over the past 10 years

Unsurprisingly, herd size and yields have increased over the past 10 years, but if you delve further into the figures there are some interesting trends.

The headline figures show that herd size has increased steadily year-on-year, gaining 35% between 2008 and 2018 to 206 cows. Stocking rates have also risen by 5% to 2.3 cows/ha reflecting improved pasture management as well as housing cows for longer. Overall yields have increased by almost 10% over the past 10 years to average

8,189 litres, although the over-year trends show that yields have somewhat plateaued around the 8,000 litre mark since 2011.

Yields from grazing have grown from 919 litres to 1,106 litres over the past 10 years, an increase of 20.6%. This is perhaps due to greater adoption of rotational grazing practices.

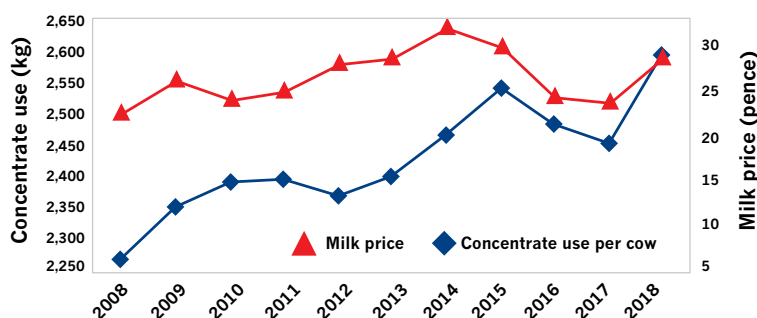
In the same period, yields from all forage increased by nearly 3% to 2,534 litres, but it's clear that most of the production increase was from non-forage sources, the result being that the proportion of yield from forage figure dropped by two percentage points in March 2018 to 31%.

It's therefore unsurprising to see that concentrate use has jumped by nearly 15% to an all-time high of almost 2.6t/cow. And given the 33% rise in concentrate prices to £217/t, total purchased feed costs increased by almost 53%, to £620/cow. Fortunately, the higher yields diluted that figure on a per litre basis, although total purchased feed costs still increased by 2.12p/litre to 7.57p/litre. It is notable that trends in overall concentrate use per cow closely map those of the milk price showing how stronger milk prices drive farm decisions on feeding regimes.

Milk prices are 6.46p/litre higher than in 2008 at 28.78p/litre, meaning the overall milk value per cow has jumped by nearly 42%, to £2,357/head. As a result, margin over purchased feeds have risen by 38% on a per cow basis to average £1,737. A similar trend is shown on a margin per litre basis with a 25.7% increase to 21.21p/litre.

Annual rolling results					
HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS					
Year ending March		2008	2018	Difference	% change
Cows in herd		152	206	54	35.5%
Stocking rate	cows/ha	2.19	2.30	0.11	5.0%
MILK PRODUCTION					
Yield per cow	litres	7,449	8,189	740	9.9%
Yield from all forage per cow	litres	2,463	2,534	71	2.9%
Yield from grazed forage per cow	litres	919	1,106	189	20.6%
% of total yield from forage		33%	31%	-2%	-6.6%
Milk price	pence	22.32	28.78	6.46	28.9%
Total milk value per cow	£	1,663	2,357	694	41.7%
Milk price: conc. price ratio		1.37	1.33	-0.04	-3.1%
FEED					
Concentrate use per cow	kg	2,263	2,596	333	14.7%
Concentrate use per litre	kg	0.30	0.32	0.02	6.7%
Concentrate price per tonne	£	163	217	54	33.1%
Other purchased feed cost per cow	£	37	57	20	54.1%
Total purchased feed cost per cow	£	406	620	214	52.7%
Total purchased feed cost per litre	pence	5.45	7.57	2.12	38.9%
All purchased feed @ 86% equivalent per cow	kg	2,505	2,830	325	13.0%
MARGINS					
MOPF per cow	£	1,257	1,737	480	38.2%
MOPF per litre	pence	16.87	21.21	4.34	25.7%

Trends in milk price and concentrate use





Kingshay Industry Services

Kingshay provide a wealth of options to link and analyse farm data, combining IT expertise with an in-depth knowledge of dairy farming and the key drivers to production efficiency.

Our easy to use services provide reports offering true insight, for the benefit of farmers, suppliers and their customers. This is backed up by independent, research-based advice and training to facilitate positive changes on-farm. Our services include:

Dairy Manager – Reliable and well supported herd performance and costings monitoring, used nationwide by many of the UK's leading feed companies, milk processors, retailers and consultants, as a key part of their customer offer.

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Dairy Insight – Sharing top quality dairy know-how has never been easier.

Training workshops – Kingshay offer a wealth of quality training workshops on a wide range of topics, delivering to farmers, consultants, nutritionists, bank managers and others across the industry.

Software development, data management and analysis – Kingshay have the skills and expertise to develop bespoke tools to organisations across the dairy industry.

AgriBudget – Dedicated farm business planning software offering a wide range of tools from “what if” analysis through to rigorous management budget reports.

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Milk price analysis

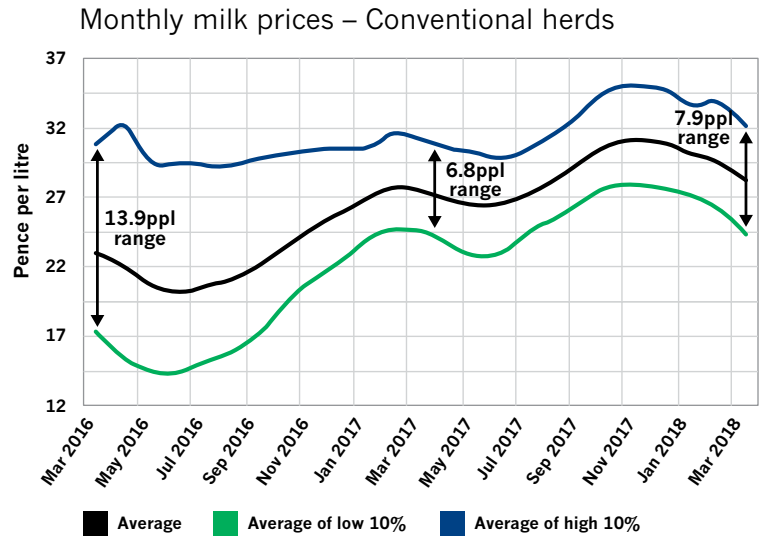
Milk prices have started to dip again since their peak in November 2017, but wholesale dairy product values have been on the up since January suggesting that Autumn 2018 should again show healthy prices.



This is borne out in that, at the time of writing, standard milk contracts are offering headline farmgate prices in excess of 30 pence per litre for July.

Average GB prices for conventional herds dropped to 28.67p/litre in March 2018 which, although 0.86p/litre down on the previous month, was still 0.98p/litre above those of March 2017. The differential between the highest and lowest 10% of contracts – based on AHDB figures for level supply of a standard litre – widened slightly to 6.86p/litre from the 6.46p/litre difference in March last year.

This reflects the previous trends where the upper 10% of prices are supported by aligned contracts while the non-aligned prices are influenced by world market values. In times of poor world prices, those on non-aligned contracts suffer the most, with the differential between the top and bottom 10% widening to an extraordinary 16.18p/litre in March 2016, leaving many of the lowest-paid producers making a large loss. In this



Best vs lowest milk price contracts – calculated based on a level supply of a standard litre

Year ending	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18
Top ppl	33.57	34.52	34.41	31.94	31.03	31.79
Bottom ppl	27.78	31.88	20.99	15.76	24.57	24.93
Difference ppl	5.79	2.64	13.42	16.18	6.46	6.86

Source: AHDB Dairy

latest evaluation period, the upper 10% will include some producers on non-aligned contracts reflecting the strength of pricing across standard contracts over the year.

Interestingly, the top milk prices have remained relatively stable since March 2016, weakening slightly from 31.94p/litre to 31.79p/litre reflecting

the “cost of production” model associated with some aligned contracts. In contrast, the bottom prices have surged from 15.76p/litre to 24.93p/litre over the past two years. And with strong levels of demand for dairy products currently outstripping supply, the immediate future looks pretty solid for both aligned and standard contract producers.



Production systems

Kingshay recently published its Dairy Production Systems report, comparing different dairy systems and efficiencies within those systems. It revealed some surprising trends – and some key points to consider.



There is no such thing as a model dairy system. Every farm has unique assets – the key is to make the most efficient use of what you have available. However, there's plenty that producers can learn from each other. Our survey of 457 farmers, with almost 89,000 cows, identified some key trends to help farmers improve efficiencies of their own.

To allow farmers to align themselves with a category we identified seven systems, characterized by method of milk production – conventional or organic, calving pattern and whether there was a greater management focus on housing or grazing. The data was then analysed to assess the key factors for profitability and presented back to give farmers the

ability to compare their performance and objectives to the best businesses operating on a similar basis.

For most herds, producing more milk from forage will reduce costs and increase profitability. Analysing the data by milk from forage, the following key trends were identified;

Yield – All year calving, housed herds had the highest yield with spring calving, grazed herds bringing up the rear. However, yield – while critical to incomes – is only one side of the picture. The cost of producing that yield is equally important in the economic equation.

Milk from forage – 15% of all farms produced more than 4,000 litres of milk from

forage – including farms in each of the seven systems. Worryingly, 10% of herds were achieving under 1,000 litres from forage. However, almost all the farms want to produce more milk from forage, with 83% targeting a modest to large increase.

Grazing days – In most groups, the top 25% of producers grazed for the longest, while the bottom 25% grazed for the shortest period.

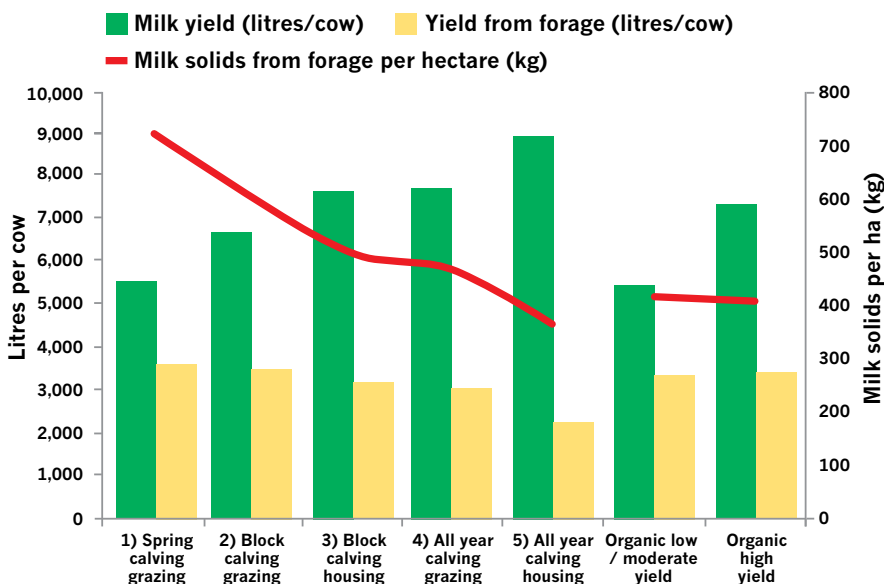
Grass quality – Even where the top producers grazed for a shorter period of time, they still had the highest grass and forage intakes, demonstrating the value of good quality grass and silage.

Forage and feeding – Farmers in the bottom 25% were most likely to have more complex feeding systems using a mixer wagon, with the top 25% preferring easy and self-feed systems.

Grazing limitations – The most common restrictions were limited accessible grazing area, poor track access and heavy land.

Future plans – Many farms plan to invest in housing and grazing infrastructure, with the bottom quartile generally the least likely to invest. Many also plan to increase yields and herd size.

Output levels by production system



Milk from forage

Monthly levels of milk from forage fell below previous years for much of 2017-18, with weather conditions conspiring against producers throughout the seasons.



It's been almost the perfect storm for dairy producers when it comes to forage availability over the past six months. The wet autumn in 2017 was followed by an icy winter and a cold, late spring, leaving producers facing higher feed costs, damaged leys and poor grass growth.

It may therefore come as a surprise to see that the total milk produced from forage remained similar to the previous year at 2,542 litres, equivalent to 31% of total milk production – perhaps due to the close attention paid to forage while milk prices were low.

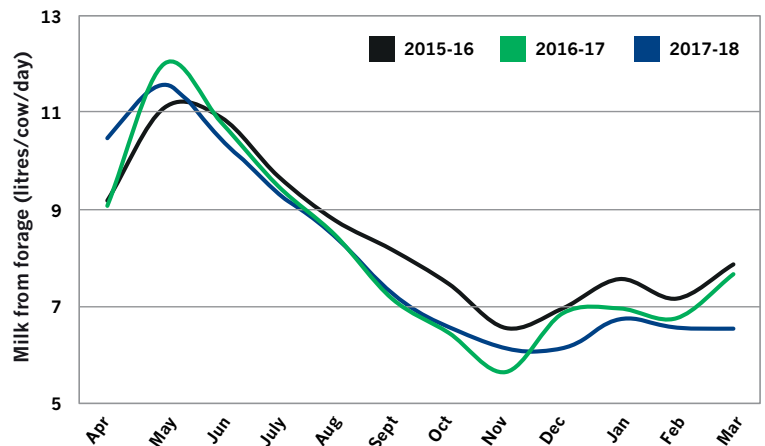
The gap between the upper quartile of producers and the average grew wider in 2018 with the top 25% producing 1,314 more litres from forage than the average group in 2018 compared to a gap of 1,205 litres in 2017. It is of note that

the lower quartile had the highest stocking rate (2.42 cows/ha) but, with milk from forage per cow at just 1,075 litres, this equated to 2,601 litres per forage hectare. In comparison, the top quartile stocked 10% lower at 2.16 cows/ha but achieved 4,288 litres from forage per cow resulting in 9,262 litres per forage hectare.

There is, of course, an inverse correlation between milk produced from forage and concentrate feed

use with the top 25% of producers using 2,011kg of concentrates against the average at 2,584kg. Although yields were lower among the top quartile, at 7,981 litres versus an average of 8,172 litres, their margins were considerably higher. Overall they averaged a margin over purchased feed of 23.11p/litre compared to 21.16p/litre. This equates to £116 per cow extra production from home produced forage – or £23,548 for the average herd size of 203 cows.

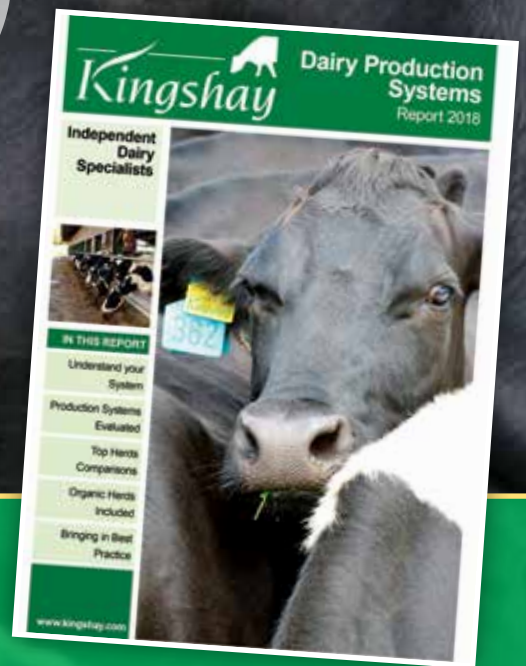
Monthly milk from forage trends



Annual results – Year end March 2018 (Ranked by milk from forage)							
HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS		Top 10%	Top 25%	Average	Bottom 25%	Top 25% – last year	Average – last year
Cows in herd		186	179	203	222	177	207
Stocking rate	cows/ha	2.16	2.17	2.30	2.42	2.20	2.30
MILK PRODUCTION							
Yield per cow	litres	8,224	7,981	8,172	8,451	7,814	8,058
Yield from all forage per cow	litres	4,288	3,856	2,542	1,075	3,721	2,516
Milk price	pence	28.89	28.97	28.72	28.55	23.62	23.76
FEED							
Concentrate use per cow	kg	1,950	2,011	2,584	3,174	1,992	2,495
Concentrate use per litre	kg	0.24	0.25	0.32	0.38	0.25	0.31
Concentrate price per tonne	£	220	220	218	215	209	204
Other purchased feed cost per cow	£	19	26	55	101	22	50
Total purchased feed cost per litre	pence	5.45	5.86	7.57	9.28	5.62	6.94
All purchased feed @ 86% equivalent per cow	kg	2,013	2,101	2,816	3,637	2,074	2,720
MARGINS							
MOPF per cow	£	1,928	1,845	1,729	1,629	1,406	1,356
MOPF per litre	pence	23.44	23.11	21.16	19.27	18.00	16.83

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- Top 10% herd comparisons
- Identify if you are on the right system to maximise your resources?
- If you are already on the right system, are you making the most of it?

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Regional analysis

Regional variations in climate will always affect the performance of dairy farms in different parts of the UK, but there are some trends you wouldn't necessarily expect to see.

The South West continued a three-year trend in steady herd growth from 188 to 209 cows in 2018, while herds in the North reduced consistently over the same time interval from 174 to 164. It's unclear why this

might be the case – perhaps due to the lower milk price received in the North, rather than a change in system, as stocking rates do not show any particular trend over the same period.

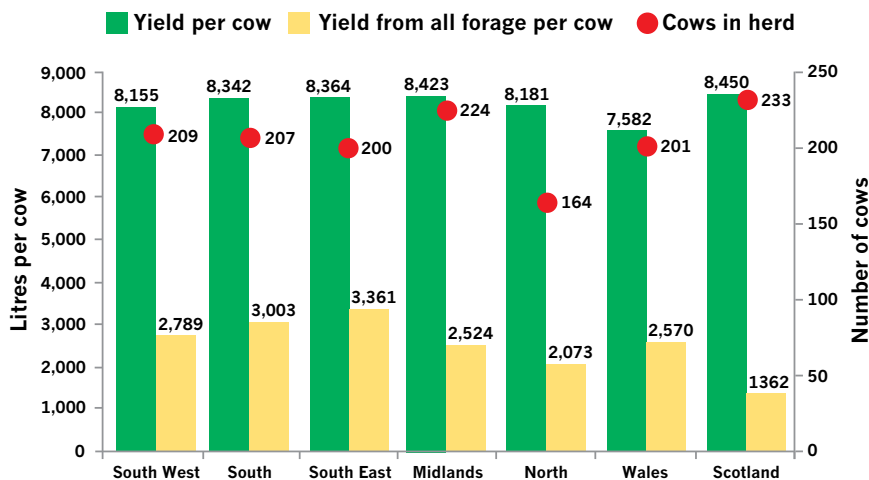
Farmers in the North suffered the lowest regional milk price at 28.24p/litre in March 2018 – well below the peak of 29.20p/litre achieved in the South East. Partly as a result of this higher price, farmers in the South East enjoyed the highest margin over purchased feed at 22.75p/litre. At the bottom of the pile was Scotland at 19.30p/litre reflecting the higher feed costs per cow due to the shorter growing season and particularly challenging weather conditions.

However, milk price is only one side of the equation. Farmers in the South East also produced the most milk from forage at 3,361 litres, and therefore had the lowest concentrate use at 2,303kg. In contrast, Scotland – understandably, given the colder climate – had the lowest milk from forage, at 1,362 litres, and thereby the highest concentrate use at 3,088kg.

Perhaps in a bid to spread those costs, Scotland continued to dominate herd size and yields in the UK, at 233 cows and 8,450 litres respectively.

Annual results – Year end March 2018								
HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS		South West	South	South East	Midlands	North	Wales	Scotland
Cows in herd		209	207	200	224	164	201	233
Stocking rate	cows/ha	2.16	2.22	2.73	2.45	2.24	2.35	2.34
MILK PRODUCTION								
Yield per cow	litres	8,155	8,342	8,364	8,423	8,181	7,582	8,450
Yield from all forage per cow	litres	2,789	3,003	3,361	2,524	2,073	2,570	1,362
Milk price	pence	29.07	29.18	29.20	28.51	28.24	28.61	28.43
Change on last year	pence	5.31	4.36	5.30	4.54	5.36	5.99	5.08
FEED								
Concentrate use per cow	kg	2,581	2,437	2,303	2,633	2,719	2,355	3,088
Concentrate use per litre	kg	0.32	0.29	0.28	0.31	0.33	0.31	0.37
Concentrate price per tonne	£	221	218	217	213	216	220	219
Other purchased feed cost per cow	£	44	67	40	58	66	41	96
Total purchased feed cost per cow	£	614	599	540	619	654	558	772
Total purchased feed cost per litre	pence	7.53	7.18	6.45	7.35	7.99	7.36	9.13
Change on last year	pence	0.48	0.40	0.22	0.45	0.59	0.58	0.86
MARGINS								
MOPF per cow	£	1,756	1,835	1,903	1,782	1,657	1,611	1,631
MOPF per litre	pence	21.54	22.00	22.75	21.16	20.25	21.25	19.30
Change on last year	pence	4.84	3.96	5.07	4.09	4.77	5.41	4.21

Herd performance by region



Milking frequency

Robotic or three-times-a-day milking are often seen as crucial elements in optimising efficient milk production. But they do not always produce anticipated returns on investment.



Reviewing analysis on margins per litre, farmers who are milking twice a day have the highest margin over purchased feed on a per litre basis, at 21.37p/litre, while robotic milking brings up the rear at 19.85p/litre. However, if you look on a per cow basis the results are very different, with twice-a-day milking down at £1,723/cow and three-times-a-day milking leading the way at £1,984/cow. This is a direct reflection of the yields achieved: Twice-a-day milkers have the lowest

yield, at 8,063 litres while those milked three times a day produced 9,836 litres in the year to March 2018.

The gap in production levels between thrice daily milking and robotic milking continues to close, from 1,093 litres in 2016 to 375 litres in 2018. This perhaps indicates improvements in the technology and management of robotic milkers.

However, milking frequency and milk price look unrelated, which is

surprising given the larger herd size of those milking three times a day. We would expect those farms to receive volume bonuses and reduced collection charges - and many would have expanded on the back of aligned contracts. One explanation could be that milk quality levels are lower in more frequently milked herds, reducing the headline price. It's clear that whatever system you choose, attention to detail and focus on both costs and returns is vital.

As might be expected, those milking twice a day had the highest yield from forage, comprising 33% of production, with robotic milkers averaging 23% and thrice daily at 21%.

To demonstrate profitable and resource efficient milk production using robotic milking in tandem with precision grazing, Kingshay have just built the new South West Dairy Development Centre in Mid Somerset. The unit, funded by Agri EPI as part of Innovate UK's Agritech strategy, became operational in late May 2018. To find out more, please get in touch on 01458 851555.

Annual results – Year end March 2018				
HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS		Twice a day milking	Robotic milking	Three times a day milking
Cows in herd		196	160	409
Stocking rate	cows/ha	2.28	2.14	2.69
MILK PRODUCTION				
Yield per cow	litres	8,063	9,461	9,836
Yield from all forage per cow	litres	2,660	2,207	2,084
Milk price	pence	28.79	28.46	28.72
FEED				
Concentrate use per cow	kg	2,505	3,375	3,301
Concentrate use per litre	kg	0.31	0.36	0.34
Concentrate price per tonne	£	218	223	218
Other purchased feed cost per cow	£	52	60	122
Total purchased feed cost per cow	£	598	814	841
Total purchased feed cost per litre	pence	7.42	8.61	8.55
All purchased feed @ 86% equivalent per cow	kg	2,716	3,570	3,764
MARGINS				
MOPF per cow	£	1,723	1,878	1,984
MOPF per litre	pence	21.37	19.85	20.17

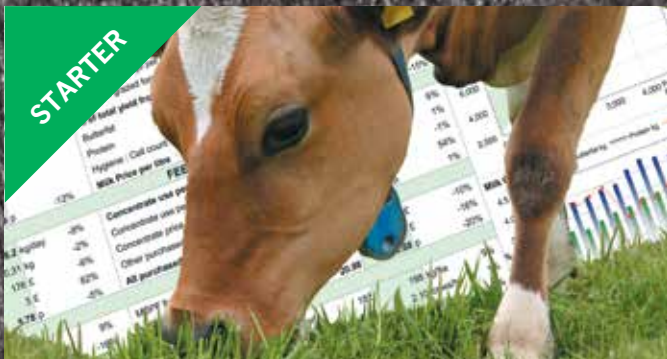
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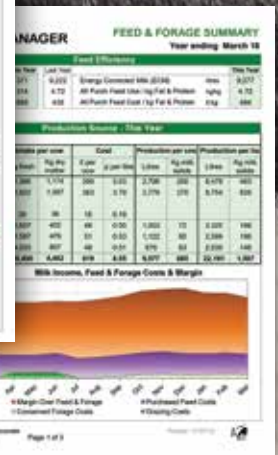
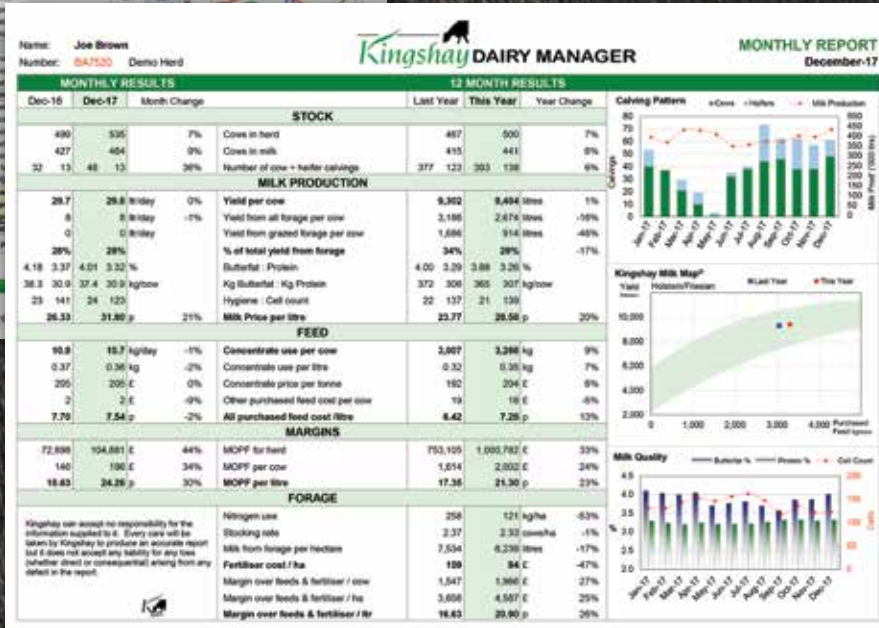


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Input price analysis: feed, fertiliser and fuel

Input costs have all broadly increased over the past year, but higher milk prices have largely offset the economic effects.



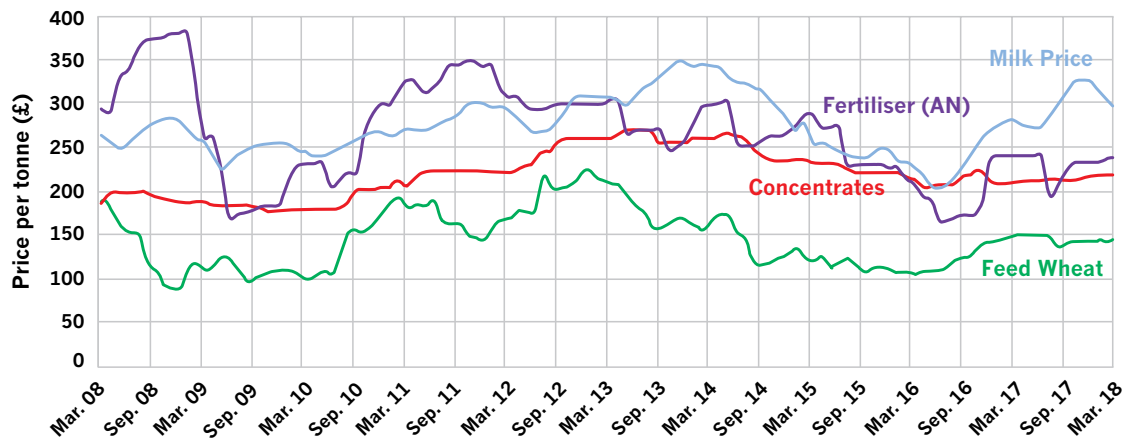
The ratio of milk price to input costs has remained virtually unchanged against March 2017 – but that masks an increase in almost all commodity values. High energy dairy feed, soyameal and maize gluten have all increased in price, with only rapeseed meal and feed wheat easing slightly. White and red diesel have both seen price gains, but ammonium nitrate fertiliser has remained relatively stable at £240/t.

At the other end of the scale, milk prices have risen from 27.46p/litre to 28.78p/litre, year-on-year, enabling producers to soak up much of those extra costs without eroding their margins. Looking at markets on a longer-term basis, all inputs are probably around the average level, having dropped from the peaks of 2011-2014 and since risen from the trough of late 2015. However, milk prices are back towards the upper

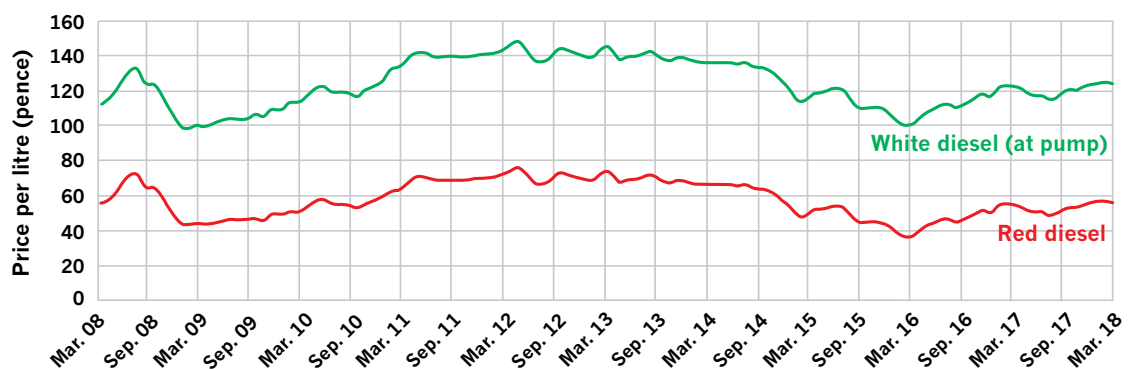
ends of the scale, offering producers an opportunity to benefit from improved margins and either pay back some borrowings or look at investments for the future.

Even so, commodity markets remain notoriously volatile and dependent on global weather, politics and economic trends. The balance remains a fine one, and buying power will be an important factor to keep costs to a minimum.

Feed and fertiliser prices vs milk price



Fuel prices



Milk yield bands

Milk yield and herd size are directly linked, with the largest herds yielding the highest at an average of 310 cows and 10,808 litres respectively. However, that doesn't necessarily make them the most profitable.



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As yields increase, the proportion of milk produced from forage declines, with the lower yielding herds achieving over 45% compared to just 18% among the highest yielding herds. Interestingly, herds producing between 6,000 litres and 9,000 litres are all achieving much the same yield from forage, at around 2,700 litres, so all additional production is accounted for through purchased feed.

Milk prices generally increase with herd size due to bonuses and reduced collection costs, although over 10,000 litres they drop off again, most likely due to lower milk compositional

quality. As yields increase, so butterfat and protein levels ease back, and separate analysis has shown that herds with average annual protein levels below 3.15% incur serious reductions in margin over purchased feeds.

This is probably as a result of insufficient energy in the diet, as protein content is a strong indicator of energy status. There is therefore a link to lower yields (yields plateau when protein reaches this level), as well as reduced fertility and extended calving intervals. This would suggest that herds under 3.15% protein can make significant gains by increasing energy in the diet.

The lower yielding herds (below 6,000 litres) deliver over 2p/litre more margin than the highest yielding herds, even though they are paid nearly 0.6p/litre less. In contrast, the higher yielders have the highest margins per cow as would be expected. Within the majority of systems, it would appear that there is still both scope and good reason to increase yields from forage, thereby keeping purchased feed costs as low as possible.

Annual results – Year end March 2018							
HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS		Up to 6,000 litres	6,000 to 7,000 litres	7,000 to 8,000 litres	8,000 to 9,000 litres	9,000 to 10,000 litres	Over 10,000 litres
Cows in herd		130	161	178	208	236	310
Stocking rate	cows/ha	2.12	2.21	2.28	2.29	2.39	2.47
MILK PRODUCTION							
Yield per cow	litres	5,343	6,549	7,519	8,495	9,468	10,808
Yield from all forage per cow	litres	2,420	2,711	2,719	2,621	2,351	2,021
Milk price	pence	28.17	28.57	28.64	28.82	29.00	28.76
FEED							
Concentrate use per cow	kg	1,445	1,853	2,277	2,693	3,209	3,791
Concentrate use per litre	kg	0.27	0.28	0.30	0.32	0.34	0.35
Concentrate price per tonne	£	220	217	218	216	219	220
Other purchased feed cost per cow	£	11	24	34	58	83	124
Total purchased feed cost per cow	£	329	425	530	640	787	959
Total purchased feed cost per litre	pence	6.16	6.50	7.05	7.54	8.31	8.88
All purchased feed @ 86% equivalent per cow	kg	1,512	1,959	2,458	2,937	3,526	4,261
MARGINS							
MOPF per cow	£	1,175	1,446	1,623	1,808	1,959	2,149
MOPF per litre	pence	22.00	22.07	21.59	21.28	20.69	19.88

Herd size bands

Efficiency with increasing size would suggest that larger herds are always more efficient, but are they?



There are so many inter-related aspects to farm productivity and profitability – yield and milk price are, of course, important, but so are feed, labour and other costs. While larger herds can benefit from economies of scale, smaller herds can keep costs scaled right down.

Indeed, the smallest herds (below 50 cows) are spending the most on concentrates, with prices averaging £231/t. Generally larger herds achieve the lowest concentrate prices, with 300 to 400 cow herds securing the lowest prices overall, at an average of £206/t, resulting from increased buying power and lower delivery charges. Above that size, prices go back up again, perhaps due to the use of better quality feeds.

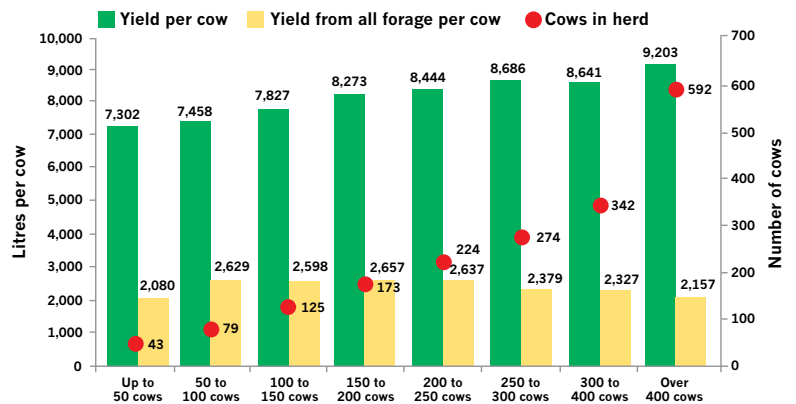
Increasing herd size and increasing yield have a direct correlation – predominantly

through the feeding of concentrates rather than a focus on grass. And that's where the middle ground seem to be getting it right. The smallest herds are only getting 28% of milk from forage, with those in the 50 to 100 cow bracket topping the table at 35%. As a percentage of production, milk from forage then eases back as herd sizes increase but the actual volume of milk from forage remains fairly consistent right through to 250 cow herds. As herd sizes reach in

excess of 250 cows, both volume and percentage of production from forage decline fairly sharply.

Margins show comparable trends on a “per litre” basis, with herds from 100 to 300 cows having similar returns, while 300-400 cow herds lead the way. It may be that attention to detail in the middle ground could provide enhanced returns and build better foundations for future herd expansion rather than reaching for extremes as the way forward?

Herd performance by herd size band



Annual results – Year end March 2018									
HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS		Up to 50 cows	50 to 100 cows	100 to 150 cows	150 to 200 cows	200 to 250 cows	250 to 300 cows	300 to 400 cows	Over 400 cows
Cows in herd		43	79	125	173	224	274	342	592
Stocking rate	cows/ha	1.41	1.83	2.15	2.39	2.42	2.59	2.62	2.85
MILK PRODUCTION									
Yield per cow	litres	7,302	7,458	7,827	8,273	8,444	8,686	8,641	9,203
Yield from all forage per cow	litres	2,080	2,629	2,598	2,657	2,637	2,379	2,327	2,157
Milk price	pence	27.69	27.80	28.65	28.74	29.12	28.89	29.45	29.40
FEED									
Concentrate use per cow	kg	2,400	2,292	2,454	2,585	2,654	2,818	2,788	3,134
Concentrate use per litre	kg	0.33	0.31	0.31	0.31	0.31	0.32	0.32	0.34
Concentrate price per tonne	£	231	224	222	218	216	212	206	209
Other purchased feed cost per cow	£	36	27	49	55	66	78	75	74
Total purchased feed cost per cow	£	590	542	595	620	638	674	649	731
Total purchased feed cost per litre	pence	8.09	7.26	7.60	7.49	7.56	7.76	7.51	7.94
All P.Feed @ 86% equiv per cow	kg	2,620	2,434	2,651	2,796	2,914	3,125	3,129	3,482
MARGINS									
MOPF per cow	£	1,432	1,532	1,648	1,758	1,821	1,835	1,895	1,974
MOPF per litre	pence	19.60	20.54	21.05	21.25	21.56	21.13	21.93	21.45

Milk protein analysis

Additional litres often come at the expense of compositional value but generally the extra litres generated per cow more than outweigh any detrimental effects on milk price.

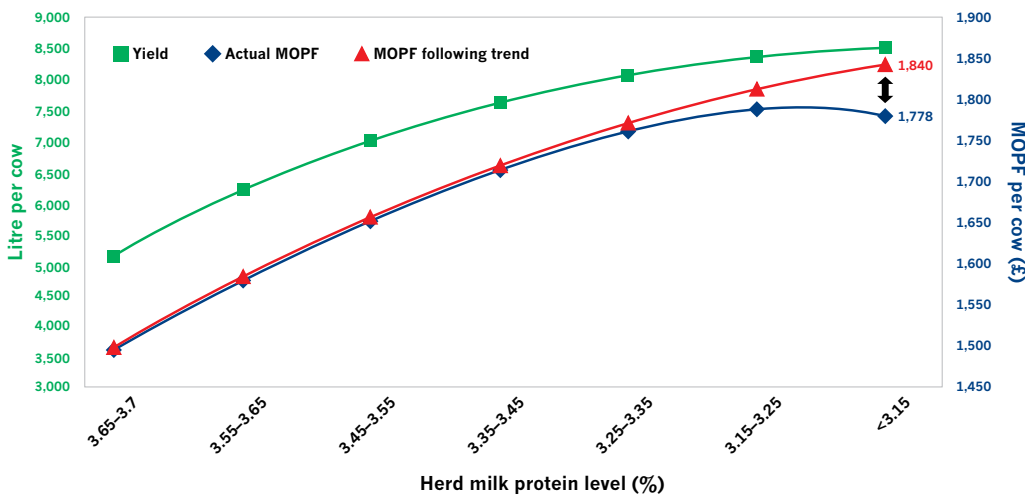
However, the data shows that there is a minimum level of milk protein below which production and margins are adversely affected.

Milk constituent values decrease with increasing yield per cow and, although reduced milk protein levels result in lower milk price on many contracts, MOPF continues to increase driven by the higher yields attained.

The data shows that this is a consistent trend until herds reach a threshold around 3.15% protein, at this point there appears to be a considerable reverse in the trends shown in both production yield and margin over purchased feeds per cow which continues as herd protein levels dip towards 3%. It would appear that there is a minimum milk protein level below which

herd margin (and therefore profitability) appears to decline. With protein being so closely linked to herd energy status, the data suggests that, for herds where energy levels are too low, there is an adverse effect on feed conversion before any of the better known additional cost generating effects of low energy, such as sub optimal fertility, come into play. If the margin and yield trends shown as milk protein reduces from 3.6% to 3.15% were to continue, then MOPF should be around £1,840 as opposed to the £1,778 achieved, which equates to £6,200 per 100 cows. It would appear that there are gains to be made from raising herd proteins both direct through increasing yield and margin but also indirect by reducing other energy associated problems.

Effects of decreasing milk protein content on MOPF



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Health trends

With stringent new antimicrobial targets, reducing product usage has to be a goal for forward-looking producers.



Kingshay **Health Manager** users have the case rate and economic details to drive pro-active decisions on health issues. So, just what has the last year shown for those using the service?

Reducing mastitis rates and somatic cell counts continue to be one of the real success stories in the UK dairy industry. This year sees the 7th consecutive yearly fall in average case rates per hundred cows, from 59 in 2012 to just 39 in the latest year while somatic cell counts have decreased from 186 to 159. Average farm mastitis costs now run at £10,218 per hundred cows, equating to a cost reduction of £4,237 per hundred cows since 2012. The top 25% gained even more ground to run at just 18 cases with an associated cost of £4,716 per hundred cows. Overall, the results would suggest that case rates are reducing in the national herd, however

this data is from farms that have quality information upon which to base decisions so, with clear sight of the costs involved, are more likely to be actively targeting these often-hidden costs.

Average lameness case rates have shown a distinct reduction in the 2018 figures while the top 25% maintained previous performance levels. The introduction of mobility scoring and targets in many milk contracts may have been a catalyst for change as average farm case rates reduced by almost 12%, to less than 40 cases per hundred cows. While average case rates have reduced, overall cost per hundred cows increased by £700 due to increasing case costs. These increases were driven by a combination of higher milk prices and the greater differential between lameness cull values against good quality culls.

Metritis continues to be one of the most prevalent problems at 7.2 cases per hundred cows with retained cleansings running close by at 5 cases per hundred cows. The average herd cost has reduced more than the top 25% in the past year although the differential in cost per hundred cows between the top 25% and average is £1,059 resulting in a £10 per cow advantage in respect of the cost of these two disorders.

In summary, the direction of travel across the Kingshay Health Manager herds is very promising. Identifying and benchmarking the true costs of health issues, whether direct through treatment and waste milk or hidden in the form of lost production and increased cull rates, gives the ability to identify the quickest wins. With many farms increasingly working with their vets to proactively reduce antimicrobial use through improved herd health planning, further improvements can be expected.

Cases per 100 cows	2014	2015	2016	2017	2018
Mastitis	50	49	49	41	39
Lameness	44	45	45	43	38

Cases per 100 cows	Group	Top 25%	Est. cost per case	Group cost	Top 25% cost	Difference
Mastitis	39.0	18.0	£262	£10,218	£4,716.00	£5,502
Lameness	38.0	22.0	£227	£8,626	£4,994.00	£3,632
Milk Fever	4.9	1.7	£203	£993	£336.59	£656
Displaced Abomasums	2.6	0.5	£244	£636	£110.01	£526
Difficult Calvings	4.6	2.2	£352	£1,619	£774.51	£845
Retained Cleansings	5.0	3.7	£357	£1,787	£1,332.48	£454
Abortions	3.8	1.4	£437	£1,659	£611.20	£1,048
Metritis	7.2	4.1	£195	£1,403	£798.91	£604
Total				£24,069	£13,674	£13,267

Meets all assurance standards

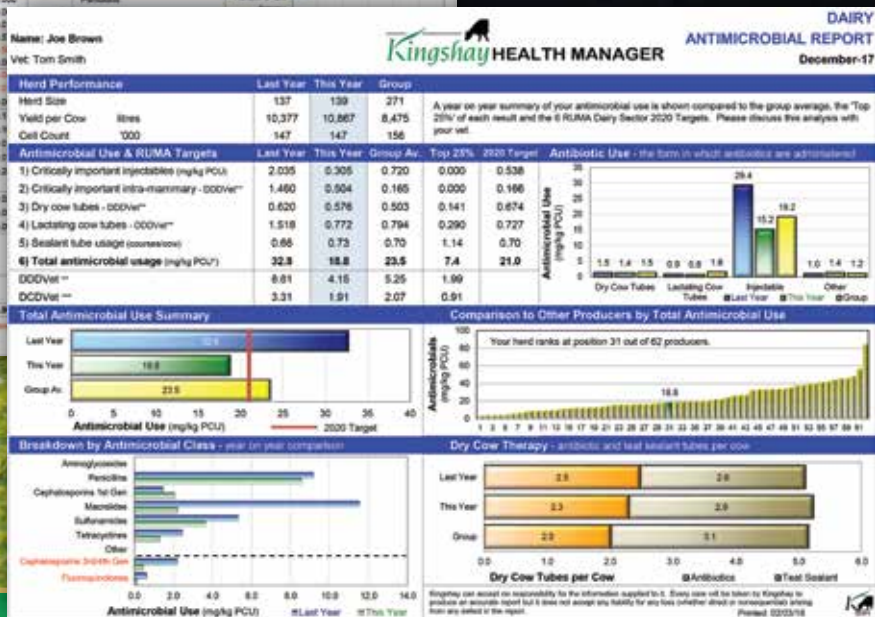
Highlight critically important products

Name: Joe Browns
Vet: Tom Smith

Kingshay HEALTH MANAGER DAIRY ANTIMICROBIAL REPORT December-17

Antimicrobial Products Purchased in Year Ending December 2017

Products Purchased (As Listed)	Total Purchased	Total Usage (mg/kg PCU)	DCDW (mg/kg PCU)	Target (mg/kg PCU)	Class of Antimicrobial within Product	Antimicrobial Products Purchased (Year on year comparison of amounts of antimicrobials used)
Betamox	3 ml	0.51	0.021	0.005	Penicillins	4 ml 2017
Betamox LA	100 ml	0.25	0.031	0.0		
Ceporex	100 ml	0.30	0.044	0.0		
Gepravin DC	320 tubes	1.35	0.161	0.1		
Colistin HCl	210 tubes	0.17	0.021	0.0		
Oxacin	8 ml	0.51	0.021	0.0		
Elive	220 ml	0.17	0.188	0.1		
Fraxip	50 ml	0.14	0.239	0.1		
Milium	19 tubes	0.16	0.137	0.0		
Mullgard	72 tubes	0.32	0.319	0.1		
Neodine 2d	800 ml	3.86	0.241	0.1		
Penicop	100 ml	0.83	0.048	0.0		
Penicoyl	144 ml	0.44	0.037	0.0		
Synkele H3	3,100 ml	7.36	0.885	0.3		
Tamoxyst Amond	18 cans	1.39				
Tylan 200	500 ml	1.86	0.130	0.0		
Univeron	40 tubes	0.32	0.289	0.0		
Univeron LA	8 ml	0.52	0.020	0.0		
Zactam	300 ml	0.51				
Total	681 Tubes	6,411 ml	18.79	4,190		



Antimicrobial Monitoring Service

This new service offers farmer friendly reporting of on-farm antimicrobial purchases to help drive responsible use of medicines, highlighting critically important products. There are monthly, quarterly or annual analysis options to identify trends based on records of antimicrobial purchases from vets.

Antimicrobial Summary Report

A summary of antimicrobial purchases with details broken down by antimicrobial class.

Antimicrobial Purchases Report

A list of antimicrobial products purchased in year, with a summary of total tubes or ml purchased.



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Reasons for cows leaving herd

Selected cull rates have continued to increase over the past year and now account for 32% of cows leaving the herd, up from 30% in 2015, according to Health Manager data.

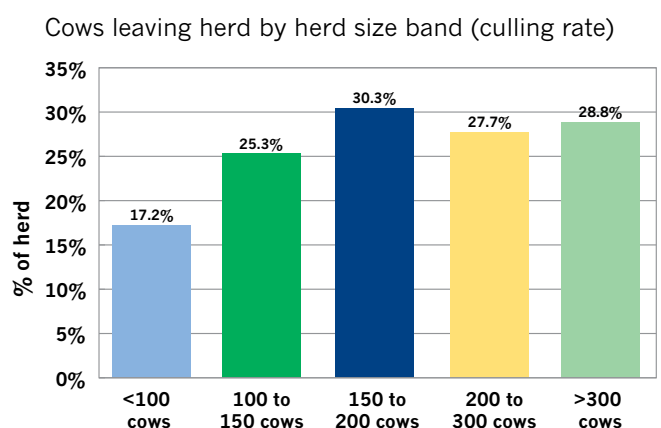
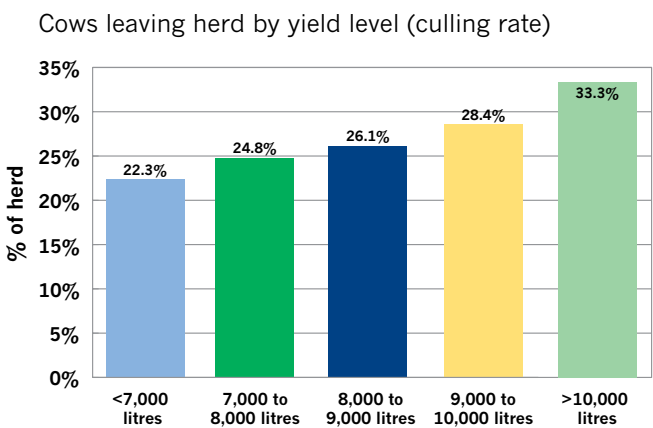
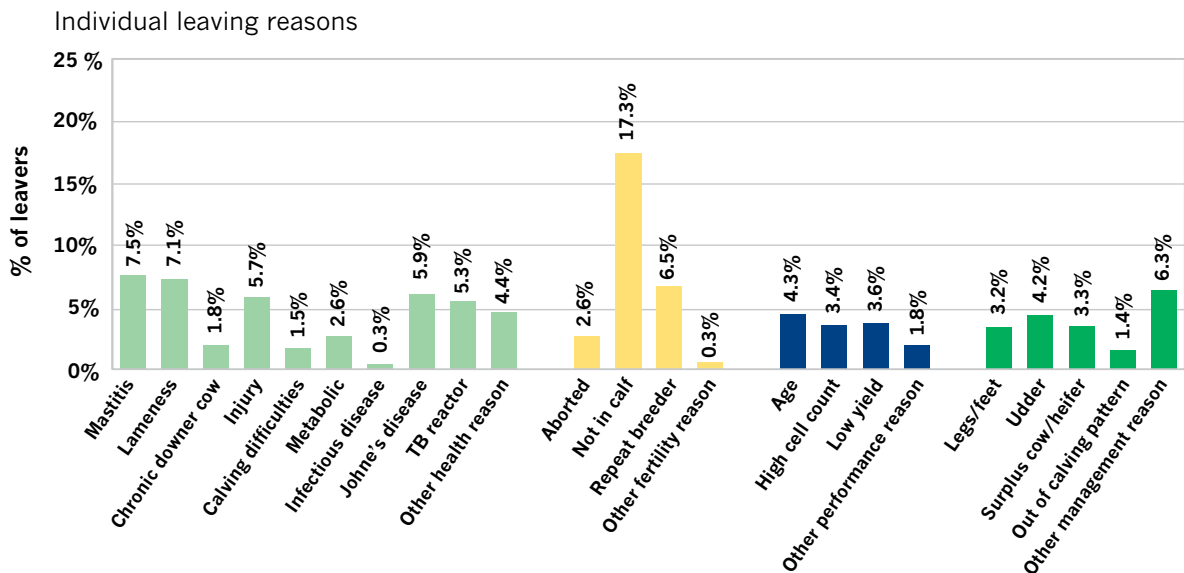
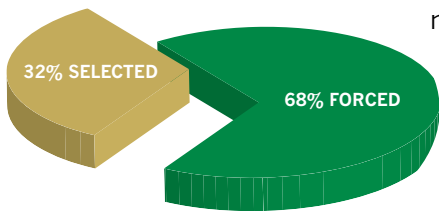
It's encouraging to see that farmers are increasingly culling for proactive reasons rather than forced reasons, as this increases the overall rate of herd improvement. However, as in past years, the most common single reason for culling is cows not being in calf, accounting for 17.3% of leavers. Mastitis and lameness are next most common, at 7.5% and 7.1%, respectively.

In total, fertility reasons accounted for 26.7% of culls, with health reasons making

up 42.1%. Performance-related issues were responsible for 13.1% of culls, with 18.4% due to management issues.

Compared to last year's results, culling for mastitis has dropped by 0.8% percentage points, with cell count reasons dropping from 4.2% to 3.4% – indicating potentially better environmental management. However, TB reactors have jumped from 2.5% last year to 5.3% this year, reflecting the greater impact of the disease and changes in the TB testing regime.

Culling rates are directly linked to yield, as higher yielding herds tend to require a greater focus on fertility. On average, culling rates have remained the same as last year, at 27%, however, as in previous years, herds with 150-200 cows have the highest culling rate, at 30.3%. It's unclear why this may be – this group had the joint highest group of selected culls at 35.5%, so these farmers appear to be focussing carefully on improving their herds.



Organic update

While organic milk premiums over conventional milk have narrowed slightly over the past year, margins remain considerably better than the conventional sector.

In the year to March 2018, organic milk prices averaged 39.28p/litre – nearly 1.9p/litre up on the previous year and 10.5p/litre above the conventional value. However, last year the price differential was 13.6p/litre. The narrowing in the premium can be explained by conventional prices having risen more sharply than organic values, mainly due to

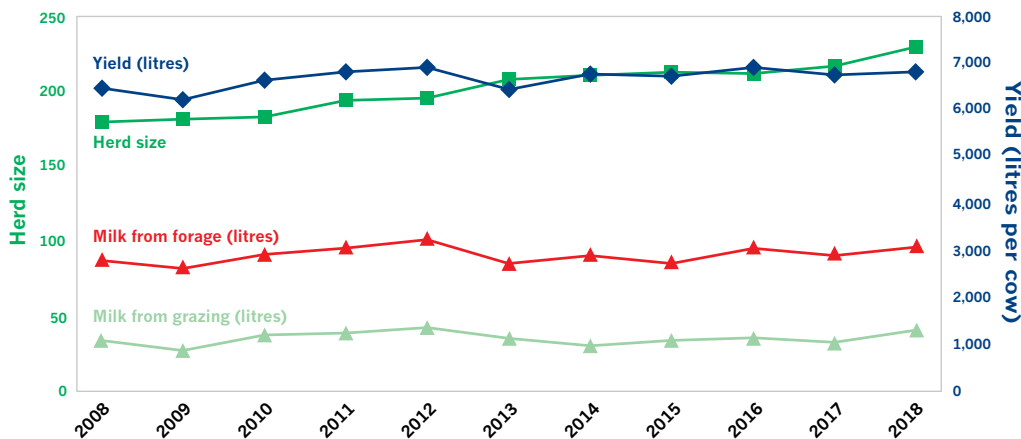
the organic market avoiding the worst effects of the 2016 global dairy downturn.

The trend in increasing herd size continued in 2018 with an 8% increase to an average of 229 cows. Both stocking rates and yields also increased to 1.83 cows/ha and 6,819 litres per cow, overall these increases mean that nearly 12,500

litres per hectare were generated against 11,675 litres last year.

With forage based production being key to organic principles, it is unsurprising that over 45% of milk was produced from forage. The economic importance of milk from forage has increased as the cost of organic concentrates continued to rise through 2017/18, to an average cost of £375/tonne. As a result, organic producers only fed 1,823kg of concentrates per cow but that still works out costly on a per litre basis, at 10.15p/litre. Despite the feed price rise, the increase in average milk price outweighed any negative impact boosting the margin over purchased feed by 4%, to 29.14p/litre.

Trends in milk production and efficiency



Annual rolling results					
HOLSTEIN/FRIESIAN, ORGANIC HERDS		Year ending March 2017	Year ending March 2018	Difference	% Change
Cows in herd		213	229	16	7.5%
Stocking rate	cows/ha	1.73	1.83	0.10	5.8%
MILK PRODUCTION					
Yield per cow	litres	6,748	6,819	71	1.1%
Yield from all forage per cow	litres	2,982	3,104	122	4.1%
Butterfat	%	4.00	3.99	-0.01	-0.2%
Protein	%	3.24	3.26	0.02	0.6%
Cellcount		180	181	1	0.6%
Milk price	pence	37.39	39.28	1.89	5.1%
FEED					
Concentrate use per cow	kg	1,852	1,823	-29	-1.6%
Concentrate use per litre	kg	0.27	0.27	0.00	0.0%
Concentrate price per tonne	£	338	375	37	10.9%
Other purchased feed cost per cow	£	8	8	0	0.0%
Total purchased feed cost per cow	£	634	692	58	9.1%
Total purchased feed cost per litre	pence	9.40	10.15	0.75	8.0%
All purchased feed @ 86% equivalent per cow	kg	1,879	1,848	-31	-1.6%
MARGINS					
MOPF per cow	£	1,889	1,987	98	5.2%
MOPF per litre	pence	27.99	29.14	1.15	4.1%

It is interesting to note that, while average yield increased by 71 litres, production from forage increased by 122 litres. The data indicates that the organic sector enhanced overall performance levels across all of the main management parameters including stocking rate, milk from forage and yield, all of which translated directly into significant improvements across all margin measures.

Channel Island update

Channel Island gross margins have improved markedly over the past year, driven by a sharp rise in milk price, improved yields and larger herd sizes.

Channel Island producers grew their herds by almost 10% in the year to March, to average 188 cows. They also increased their stocking rates by 3%, to 2.75 cows/ha, which is perhaps the reason behind a slight fall

in yields from forage, from 2,080 litres in 2017 to 1,978 litres in 2018.

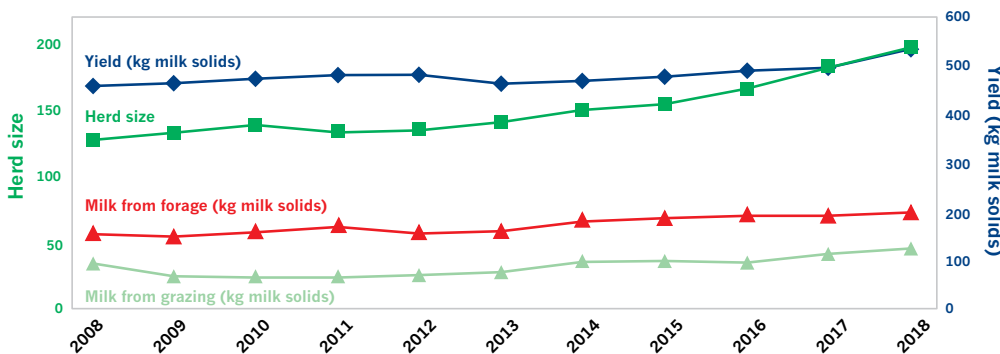
However, an 8.8% increase in concentrate use, to just over 2t/cow, helped to boost overall milk yields by 5%

to 5,812 litres – the highest level ever recorded in Dairy Manager. These additional marginal litres came at a very reasonable feed rate of just 0.41 kilograms per extra litre certainly justifying the extra investment made. The increased concentrate usage also appears to have boosted constituent levels to 5.41% butterfat and 3.84% protein, which will have helped to improve milk price across constituent-based contracts.

As a result of higher concentrate use and slightly higher feed prices, purchased feed costs increased by £101/cow to £554 a head. However, a 28% increase in milk price to 35.18p/litre more than offset these higher costs. Overall, this resulted in strong year-on-year growth in margins over purchased feed of almost 33%, to average 25.65p/litre.

Annual rolling results					
CHANNEL ISLAND, CONVENTIONAL HERDS		Year ending March 2017	Year ending March 2018	Difference	% change
Cows in herd		171	188	17	9.9%
Stocking rate	cows/ha	2.66	2.75	0.09	3.4%
MILK PRODUCTION					
Yield per cow	litres	5,526	5,812	286	5.2%
Yield from all forage per cow	litres	2,080	1,978	-102	-4.9%
Butterfat	%	5.38	5.41	0.03	0.6%
Protein	%	3.82	3.84	0.02	0.5%
Milk price	pence	27.51	35.18	7.67	27.9%
FEED					
Concentrate use per cow	kg	1,871	2,035	164	8.8%
Concentrate use per litre	kg	0.34	0.35	0.01	2.9%
Concentrate price per tonne	£	215	235	20	9.3%
Other purchased feed cost per cow	£	51	76	25	49.0%
Total purchased feed cost per cow	£	453	554	101	22.3%
Total purchased feed cost per litre	pence	8.20	9.53	1.33	16.2%
All purchased feed @ 86% equivalent per cow	kg	2,082	2,322	240	11.5%
MARGINS					
MOPF per cow	£	1,067	1,491	424	39.7%
MOPF per litre	pence	19.31	25.65	6.34	32.8%

Trends in milk production and efficiency



This compares very favourably with conventional margins, at 21.21p/litre, but lags well behind organic returns of 29.14p/litre, mainly due to the lower milk price received. It will be important to keep an eye on both milk prices and purchased feed costs to ensure feeding for higher yields is a worthwhile investment.



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*Based on a 200 cow herd, Dairy Manager data shows significant differences in feed efficiencies and health at all yield level herds. The Top 25%, herds versus the average:

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- Reduced mastitis incidence from 41 to 22 cases per 100 cows, saving £11,020

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