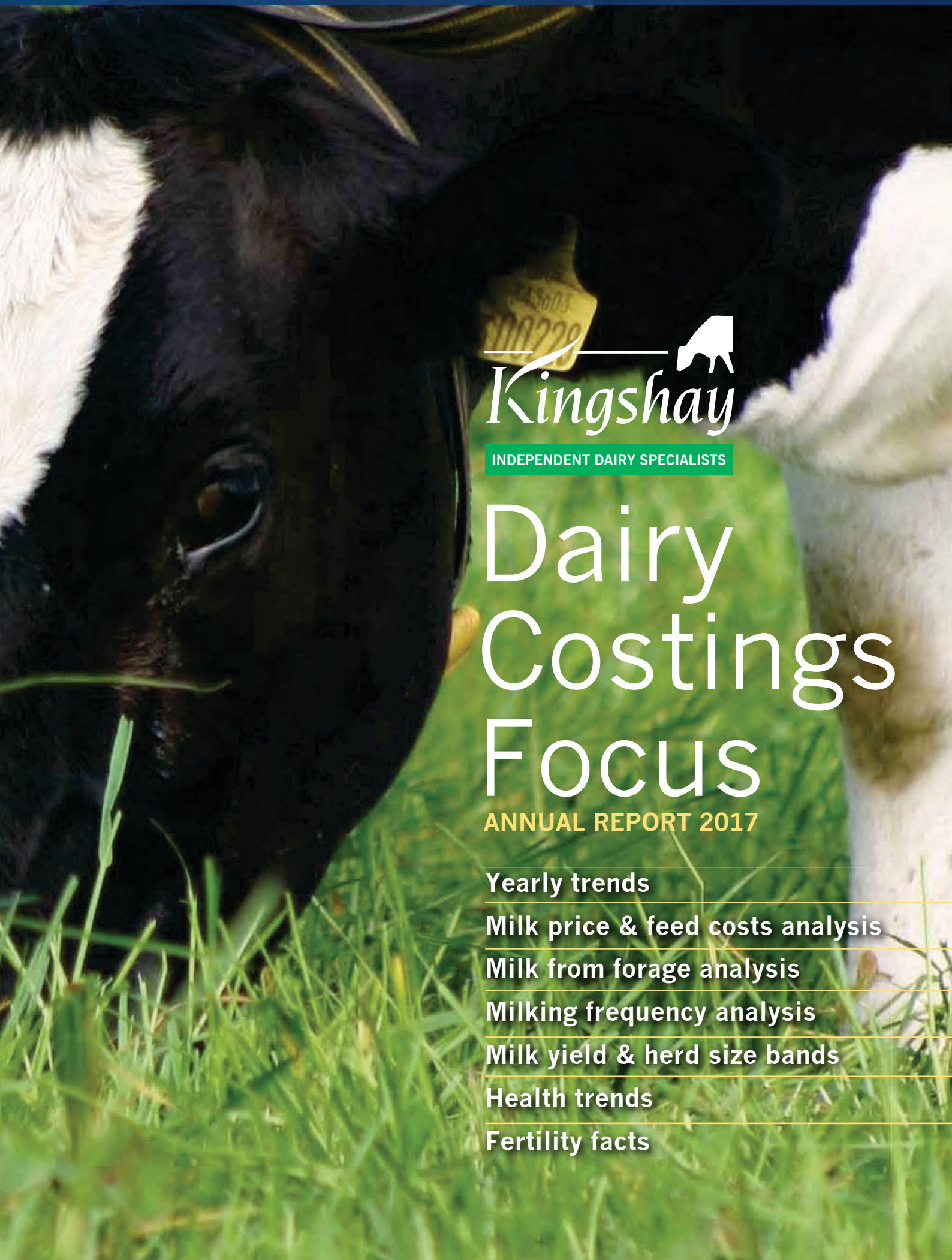

Kingshay

INDEPENDENT DAIRY SPECIALISTS

Dairy Costings Focus

ANNUAL REPORT 2017

- Yearly trends
- Milk price & feed costs analysis
- Milk from forage analysis
- Milking frequency analysis
- Milk yield & herd size bands
- Health trends
- Fertility facts

Welcome

With more than 25 years' experience of giving independent and unbiased advice, Kingshay is responding to the needs of today's dairy farmers by continuing to invest in a range of new & existing services.

Maximising efficiency continues to be the core focus of our services for our producer members, with the Dairy Manager and Health Manager services assisting them in reviewing how herd performance compares with others. This is the mission behind this, our sixth, annual Dairy Costings Focus Report, where we look beyond the simple average data.

The data in this report gives farmers a unique opportunity to see the typical efficiencies of many different systems, to set realistic targets to improve efficiency within their existing system or to investigate alternative production systems. There is valuable information for those who want to ask "could I be better off?", perhaps by changing to block calving, or how much will feed efficiency be influenced by moving to robotic milking?

We also support farmers' decisions with our practical farm trials, technical notes and reports, independent advice and services through our membership packages.

Two years ago, we embraced changes of our own by joining the larger Origin group. This group includes some of the UK's leading farm animal veterinary businesses, giving Kingshay access to a wider audience and greater skill base, while allowing us to remain independent.

This year we launched AgriBudget, a budgeting program for use by consultants and farmers, allowing expansions, investments or changes to systems to be planned out and helping finance to be secured to achieve those plans. Kingshay will also be launching an Antimicrobial Review service later this year.

We are also a key partner in the Agricultural Engineering Precision Innovation (AgriEPI) Centre, which has been established with UK government investment to help provide engineering and precision agriculture solutions for the Agri-Food industry. This will bring together research and commercial organisations, resulting in collaborations which will benefit the whole supply chain.

To find out more about Kingshay's membership options and other services, please call our team on 01458 851555 or visit www.kingshay.com. Our industry enthusiasts are always happy to discuss how we can help you achieve your aims and profit from farming in the years to come.

Kathryn Rowland,
Senior Farm Services Manager

Contents

Introduction

More in-depth analysis in this year's Kingshay Dairy Costings Focus Report shows the lowest paid conventional, Holstein/Friesian herds have received a higher price from November 2016 than in the same period a year earlier, even though there has been a small decrease in the average rolling milk price.

Kingshay **One2One Consultancy** services offer strategic and practical advice – call us now for more details.

The lowest 10% of **Dairy Manager** recorded herds ranked by milk price received 24.5ppl in March 2017 compared with 17.2ppl in March 2016. The gap between the lowest and highest 10% paid herds having halved between March 2016 and March 2017 to 6.8ppl. See further details on page 4.

The last 11 years of **Dairy Manager** data shows the average price received was 25.7ppl, although the type of contract and milk buyer have had an increasing effect on the milk price for individual herds.

Performance from forage in the year to March 2017 has seen a small decrease from the previous very good growing season. However, it's the results of the top and bottom performing herds ranked by yield from forage that highlight a wide range in the feed use efficiency between herds (see page 6). Top 10% of herds saved 1.8ppl in feed costs compared with the average, by producing 1,610 litres more from forage at a similar yield close to 8,000 litres.

For a typical herd, selling 1.6m litres, that's worth £28,800 in feed costs. This scale of difference in purchased feed costs could be the difference between profit and loss on many farms, even with better milk prices forecast this year.

In a dairy farming industry where being "average" seems unlikely to result in reliable long term profits, there is much to gain from using this report to benchmark herd performance. A review using the data relating to a range of relevant factors, such as region, herd size and milk yield level, can indicate what is possible in a particular scenario. Then, by estimating the financial gains from making any changes, this may justify additional management effort, investment in reseeding or tracks and seeking independent advice on cow nutrition or grazing management, to lower milk production costs in the longer term.

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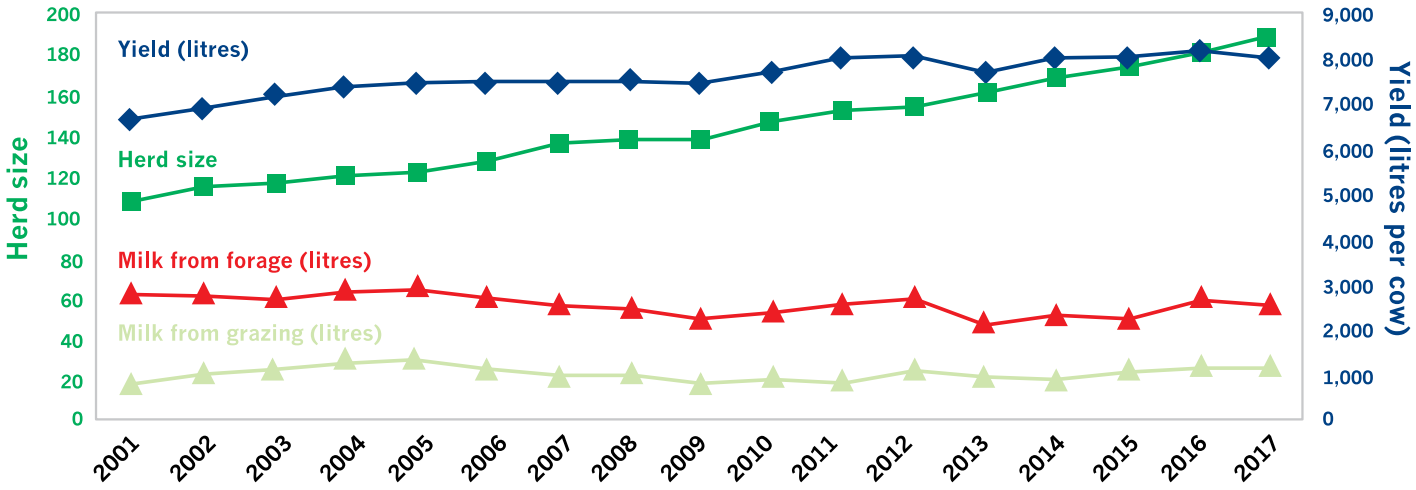
Trends in milk production and efficiency



Trends over the last 10 years

The size of the average Holstein/Friesian herd recording performance with Kingshay's **Dairy Manager** service increased at a similar rate in the year to March 2017 as it has over the previous 10 years, to reach 207 cows.

This was the greatest factor behind the increase in total herd output, which was up to 1.67m litres in 2017 from 1.12m litres in the year to March 2007. A 49% increase.

Yield per cow in the year to 2017 was 587 litres above that in 2007, but between 2016 and 2017 results have decreased by 148 litres a cow, closer to the 2015 level.

To remove some seasonal variation, averaging data between 2005 and 2007 shows cows yielded 7,460 litres compared with 8,100 litres in the most recent three years, representing an average 640 litres a cow longer term gain.

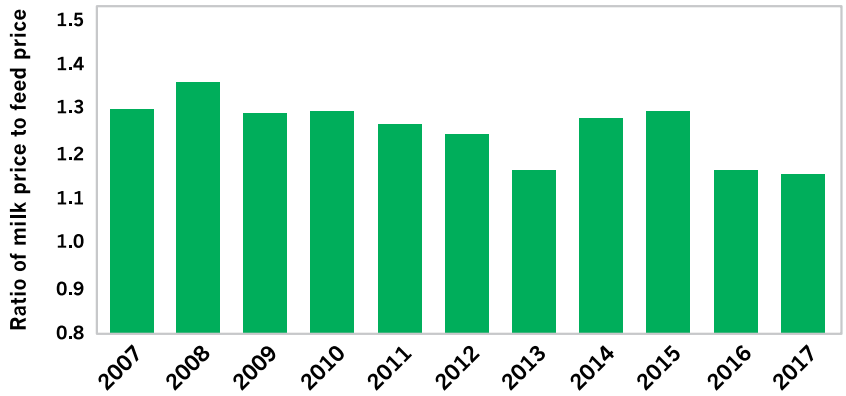
Annual rolling results

HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS Year ending March		2007	2017	Difference	% change
Cows in herd		150	207	57	38%
Stocking rate	cows/ha	2.20	2.30	0.10	4.5%
MILK PRODUCTION					
Yield per cow	litres	7,471	8,058	587	7.9%
Yield from all forage per cow	litres	2,546	2,516	-30	-1.2%
Yield from grazed forage per cow	litres	888	1,106	218	24.5%
% of total yield from forage		34%	31%	-3%	-8.5%
Milk price	pence	17.70	23.76	6.06	34.2%
Total milk value per cow	£	1,322	1,915	593	44.9%
Milk price: conc. price ratio		1.31	1.16	-0.15	-11.2%
FEED					
Concentrate use per cow	kg	2,230	2,495	265	11.9%
Concentrate use per litre	kg	0.30	0.31	0.01	3.3%
Concentrate price per tonne	£	135	204	69	51.1%
Other purchased feed cost per cow	£	29	50	21	72.4%
Total purchased feed cost per cow	£	330	559	229	69.4%
Total purchased feed cost per litre	pence	4.42	6.94	2.52	57.0%
All purchased feed @ 86% equivalent per cow	kg	2,450	2,720	270	11.0%
MARGINS					
MOPF per cow	£	992	1,356	364	36.7%
MOPF per litre	pence	13.28	16.83	3.55	26.7%

While cow yields have increased, the amount produced from forage was remarkably similar in the years to 2007 and 2017. However, in the more recent year's results 218 litres a cow more is coming from grazed forage than 10 years ago. The data for 2015 and 2016 also shows yield from grazing results of above 1,000 litres a cow, but it was only above 1,000 litres in one year in the eight years prior to 2014. This reflects some producers' keenness to gain more from grazing to lower costs when milk prices were low.

Concentrate feed use per cow has increased because of the additional litres produced per cow, averaging 265kg more in 2017 than in 2007, having remained close to 2,500kg in the last three years. Since 2007, the price of purchased feed has increased by 51% a tonne, with feed costs a litre increased by 57% or 2.5ppl. However, the price/t was even higher in 2014 and 2015, with feed costs per litre peaking at 8.6ppl, before reducing to below 7ppl for the most recent two years, as producers focussed on rationalising costs when milk prices were low.

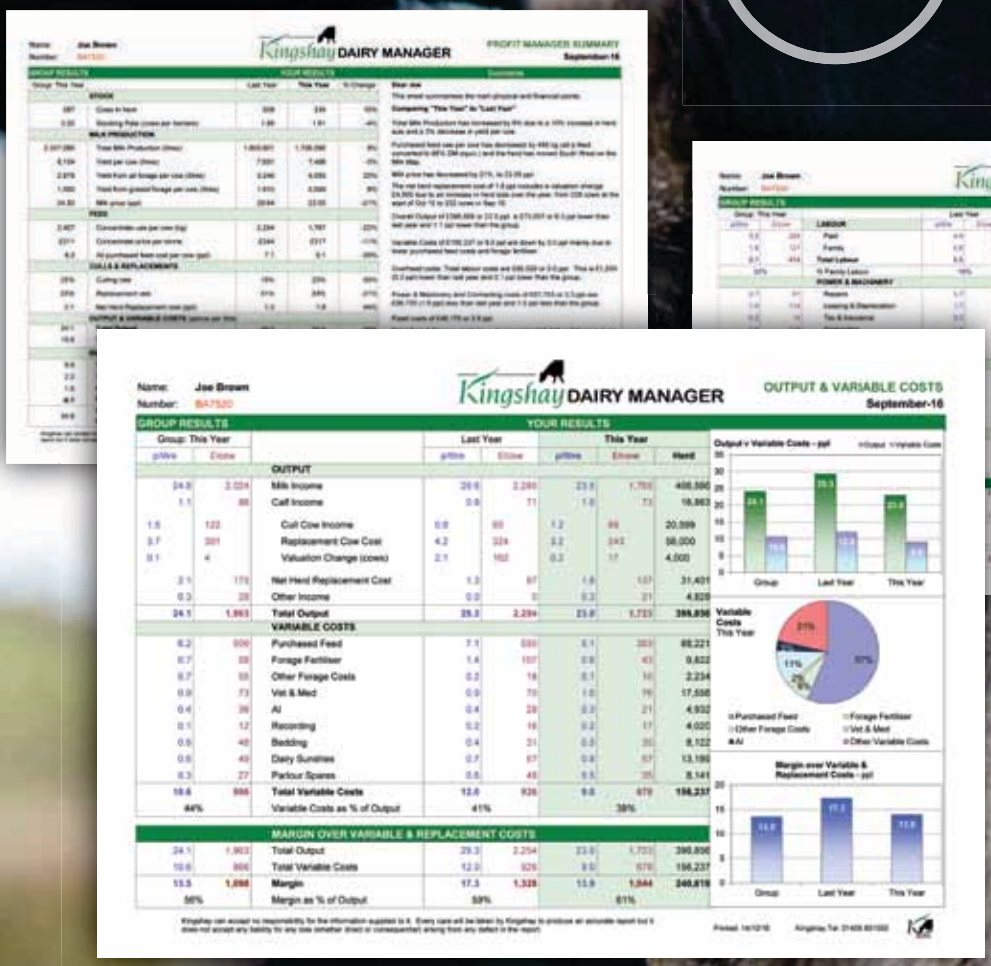
Trends in milk price: feed price ratio



Know your costs

Plan ahead

Control your costs



Profit Manager allows you to control your costs, drive your profits and identify your costs of production right down to the bottom line.

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Milk price analysis

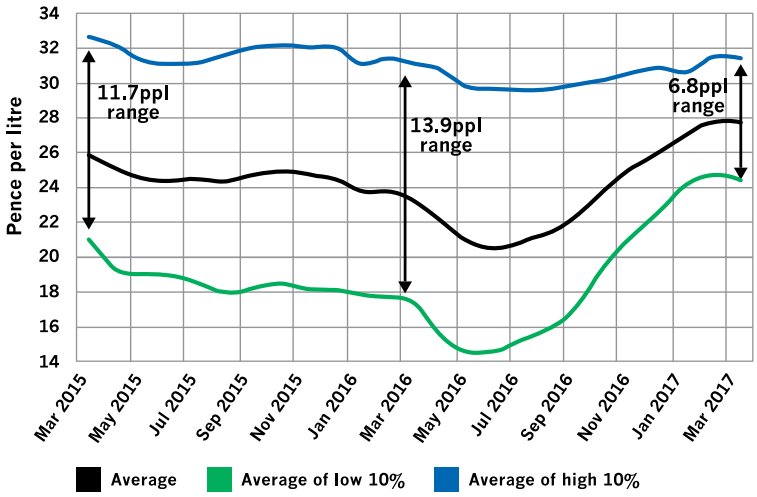
The rolling average milk price in **Dairy Manager** results for the conventional, Holstein/ Friesian year to March 2017 may have decreased by 0.6ppl to 23.8ppl, but lower paid farmers have seen welcome price increases, particularly in the second half of the year.

The market segmentation reported last year is still evident. However, the gap between the lowest paid 10% and highest paid 10% was down to 6.8ppl for March 2017, compared with 13.9ppl in March 2016. The prices received by the highest paid has changed little at 31.3ppl, so the beneficiaries are the lowest 10% with a monthly price in March of 24.5ppl compared with 17.2ppl in March 2016, a rise from what was a totally unsustainable level.

Although further price increases in the last few months have steadied, the prospects for further market increases look promising, allowing non-aligned producers the potential of achieving a reasonable return.

For individual herds, securing a good milk price in the long term will depend on acquiring a milk contract that is less sensitive to World market fluctuations or provides the option to manage some volatility using new tools to hedge and fix the price for a percentage of their production.

Monthly milk prices – Conventional herds



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

Year ending		Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17
Top	ppl	32.07	33.57	34.52	34.41	31.94	31.03
Bottom	ppl	27.11	27.78	31.88	20.99	15.76	24.57
Difference	**ppl**	**4.96**	**5.79**	**2.64**	**13.42**	**16.18**	**6.46**

Source: AHDB Dairy

Trends in milk prices for Organic herds and Channel Island herds can be found on pages 19 and 20.

Calving pattern

Block calving herds achieve at least 400 litres more yield from forage than all year round calving herds, but the differences in results between the block calving seasons is relatively small, according to **Dairy Manager** results.

Annual results – Year end March 2017					
ALL BREEDS, CONVENTIONAL HERDS		**Spring Calving**	**Autumn Calving**	**Winter Calving**	**All year round**
Cows in herd		214	198	149	207
Stocking rate	cows/ha	2.41	2.24	2.27	2.33
MILK PRODUCTION					
Yield per cow	litres	5,641	7,599	7,247	8,073
Yield from all forage per cow	litres	3,067	2,986	2,849	2,413
Butterfat	%	4.52	4.20	4.16	4.11
Protein	%	3.50	3.31	3.28	3.28
Milk price	pence	23.83	24.21	22.25	24.18
FEED					
Concentrate use per cow	kg	1,297	2,207	1,970	2,580
Concentrate use per litre	kg	0.23	0.29	0.27	0.32
Concentrate price per tonne	£	195	204	208	208
Other purchased feed cost per cow	£	7	32	53	54
Total purchased feed cost per cow	£	260	482	462	590
Total purchased feed cost per litre	pence	4.60	6.35	6.37	7.31
All purchased feed @ 86% equivalent per cow	kg	1,355	2,341	2,177	2,822
MARGINS					
MOPF per cow	£	1,084	1,358	1,151	1,362
MOPF per litre	pence	19.22	17.87	15.88	16.87

Results for all breeds to March 2017 show spring calving herds achieve the most from forage at 3,067 litres a cow, but autumn calving herds are just 81 litres lower and winter calving herds 218 litres lower. However, there are greater differences in yield per cow, although spring calving herds milk is of higher constituent quality. Spring calving herds also have the highest stocking rate.

Yield level is a factor in the amount of purchased feed that is used in the different groups and therefore helping the spring calving group to achieve the lowest purchased feed cost at 4.6ppl, which is also likely to be coupled with more grazing than conserved forage, giving further cost savings. While autumn calving herds spend 6.4ppl on feed, their higher yields do result in an extra £274 a cow in margin over purchased feed, to counter higher overhead and capital costs.

All year round calving herds have a similar margin over purchased feed per cow to autumn block calving herds, despite producing 470 litres a cow more yield, so on a per litre basis the margin is 1ppl lower at a similar milk price. A similar margin per litre would result for winter block calving without the 2ppl milk price difference seen in these results, which is not accounted for by milk quality, but some of which may relate to total herd output.

Milk from forage

The last four years of **Dairy Manager** results ranked by milk from forage show the top 10% of herds achieved above 4,000 litres a cow from forage each year, with a yield of about 8,000 litres a cow.

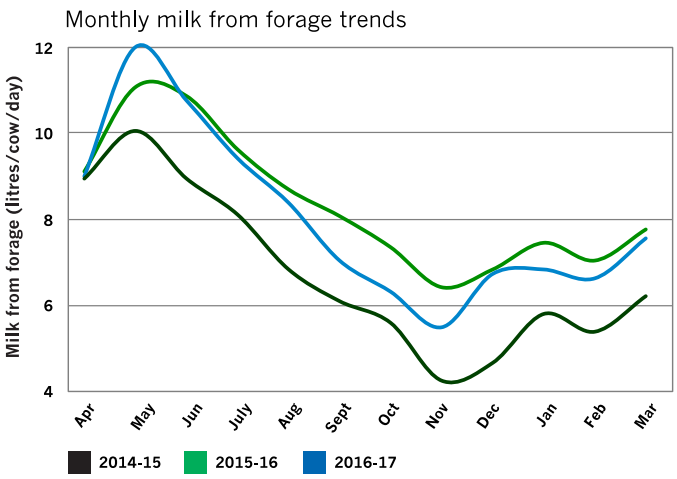
The latest year's data shows a fall from the peak of close to 4,500 litres from forage in the year to March 2016 for these top 10% herds, reflecting the poorer grazing and harvesting conditions. The impact of these conditions was also seen by the average and top 25% herds reducing yield from forage, but to a lesser extent.

The bottom 25% shows no difference in yield from forage from 2016, which remains below half that achieved by the average at 1,176 litres a cow and more than 2,500 litres below the top 25%. This leads to the bottom 25% having a feed cost that is 1.6ppl higher than the average and 2.9ppl higher than top 25% herds.

Although the bottom 25% herds yield 645 litres a cow more and stock at an extra 0.24 cows/ha than the top 25%, the 1,118kg of concentrate they use and additional purchased feed costs amount to an extra £284 a cow worth of feed, or 44ppl for each extra litre of milk produced.

For a typical bottom 25% 200-cow herd, averaging 8,000 litres, achieving average performance from forage would have saved £24,000 a year in feed costs, while the top 25% spent £46,400 less in the year to March 2017.

When herds are analysed by feed costs per litre, the lowest 25% feed cost herds spend just 5ppl, which is 4ppl less than the highest 25% at 9ppl. There is a bigger yield effect seen here with the lowest cost herds yielding 2,000 litres less at 6,980 litres a cow, but this indicates what lower yielding herds might be able to achieve in terms of feed costs. However, feed costs below 9ppl are achievable for herds yielding above 9,000 litres, according to the yield bands data on page 13, which shows a 7.95ppl average.



Annual results – Year end March 2017 (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		170	177	207	258	167	197
Stocking rate	cows/ha	2.11	2.20	2.30	2.44	2.19	2.29
MILK PRODUCTION							
Yield per cow	litres	7,954	7,814	8,058	8,459	8,044	8,193
Yield from all forage per cow	litres	4,136	3,721	2,516	1,176	3,983	2,638
Milk price	pence	23.56	23.62	23.76	24.19	24.24	24.41
FEED							
Concentrate use per cow	kg	1,869	1,992	2,495	3,110	1,966	2,521
Concentrate use per litre	kg	0.23	0.25	0.31	0.37	0.24	0.31
Concentrate price per tonne	£	212	209	204	201	212	211
Other purchased feed cost per cow	£	20	22	50	97	24	54
Total purchased feed cost per litre	pence	5.24	5.62	6.94	8.55	5.49	7.15
All purchased feed @ 86% equivalent per cow	kg	1,945	2,074	2,720	3,581	2,060	2,762
MARGINS							
MOPF per cow	£	1,457	1,406	1,356	1,323	1,508	1,414
MOPF per litre	pence	18.32	18.00	16.83	15.64	18.74	17.26

Regional analysis

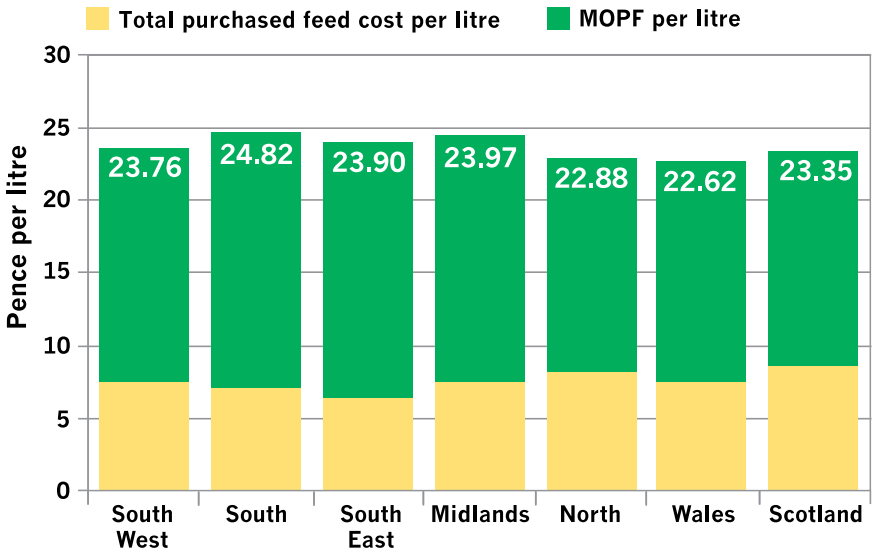
The combined effect of the highest milk price and relatively low feed costs sees the South region achieve the highest margin over purchased feed per litre, almost 3ppl higher than herds in Scotland.

Dairy Manager results to March 2017 show the regional difference in milk prices has reduced to 2.2ppl from 3.7ppl last year. All regions average milk prices have reduced relative to last year, but with a large regional effect, seeing the South, South West and South East more than 1ppl lower, less in Wales and very little change in Scotland.

Feed costs have all reduced slightly, but the range between regions is still more than 2ppl. Scotland is 0.9ppl higher than the next highest cost region at 8.3ppl, reflecting differences in forage growing conditions, which were also seen to impact on feed costs in the North region. The lowest feed costs were achieved in the South East.

Annual results – Year end March 2017								
HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS		South West	South	South East	Midlands	North	Wales	Scotland
Cows in herd		202	204	196	226	170	213	236
Stocking rate	cows/ha	2.18	2.30	2.59	2.42	2.18	2.29	2.58
MILK PRODUCTION								
Yield per cow	litres	7,986	8,077	7,957	8,161	8,379	7,497	8,507
Yield from all forage per cow	litres	2,683	2,782	3,070	2,464	2,248	2,525	1,581
Milk price	pence	23.76	24.82	23.90	23.97	22.88	22.62	23.35
Change on last year	pence	-1.12	-1.83	-1.08	-0.53	-0.57	-0.29	0.06
FEED								
Concentrate use per cow	kg	2,514	2,397	2,249	2,529	2,703	2,318	3,064
Concentrate use per litre	kg	0.31	0.30	0.28	0.31	0.32	0.31	0.36
Concentrate price per tonne	£	208	206	206	201	204	202	206
Other purchased feed cost per cow	£	39	53	33	56	68	39	71
Total purchased feed cost per cow	£	563	548	496	563	620	508	703
Total purchased feed cost per litre	pence	7.05	6.78	6.23	6.90	7.40	6.78	8.27
Change on last year	pence	-0.06	-0.16	-0.30	-0.17	-0.23	0.01	0.06
MARGINS								
MOPF per cow	£	1,334	1,458	1,406	1,393	1,297	1,187	1,283
MOPF per litre	pence	16.70	18.04	17.68	17.07	15.48	15.84	15.09
Change on last year	pence	-1.07	-1.67	-0.77	-0.36	-0.34	-0.31	0.01

Milk prices, feed costs and margins by region



Milking frequency

Making a decision to milk using robots or three times a day is usually based on overhead costs and anticipated yield responses, but analysis of **Dairy Manager** results indicate differences in feed efficiency may also influence profitability.

Yield responses were seen, with robotic milking herds averaging 1,270 litres a cow more than herds milking twice a day and three times a day herds produced 1,900 litres more.

However, robotic milking herds used £195 more purchased feed per cow or 1.2ppl compared with milking twice a day in the year to March 2017. Therefore, the extra 1,269 litres a cow produced was achieved from 796kg of extra concentrate. These herds may also have higher forage costs, as it would be more typical to feed cows all forage in the trough than for a typical twice a day milked herd.

Robotic herds did show a milk price that was higher than twice a day milking, but this was not explained by the total volume of milk sales or milk constituent quality, which was lower, indicating a location or individual contract effect. Alternatively, this may indicate that herds on better paying contracts have been more likely to invest in robots.

The higher milk price for robotic herds did reduce the impact on margin over purchased feed to just 0.5ppl lower than twice a day milking and resulted in an additional margin of £163 a cow.

When considering the overall potential of robotic milking, there may be overhead cost savings, particularly labour, to take into account, as well as lifestyle benefits.

In contrast, labour and other overhead costs may increase with three times a day milking, but the extra output may help milk prices and return on capital invested. These herds used 875kg more purchased feed than twice a day milking herds, costing 1ppl more. However, the 1.3ppl extra milk price achieved, some of which will be attributable to the larger herd size, meant the margin over purchased feed was 0.25ppl higher.

Annual results – Year end March 2017

HOLSTEIN/FRIESIAN, CONVENTIONAL HERDS		Twice a day milking	Robotic milking	Three times a day milking
Cows in herd		196	157	414
Stocking rate	cows/ha	2.29	2.04	2.58
MILK PRODUCTION				
Yield per cow	litres	7,877	9,146	9,782
Yield from all forage per cow	litres	2,573	2,225	1,965
Milk price	pence	23.45	24.10	24.74
FEED				
Concentrate use per cow	kg	2,436	3,233	3,311
Concentrate use per litre	kg	0.31	0.35	0.34
Concentrate price per tonne	£	205	214	200
Other purchased feed cost per cow	£	46	49	116
Total purchased feed cost per cow	£	545	740	779
Total purchased feed cost per litre	pence	6.92	8.09	7.96
All purchased feed @ 86% equivalent per cow	kg	2,647	3,445	3,796
MARGINS				
MOPF per cow	£	1,302	1,465	1,641
MOPF per litre	pence	16.53	16.01	16.78

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

Kingshay DAIRY MANAGER

Dairy Manager, the UK's leading dairy costings service enables you to track your costs and your herd health status.

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Our packages detailed below include options for targeted reports, allowing you to create and monitor regular production forecasts, highlight key health issues, compare your herd to similar herds and calculate your bottom line profit.

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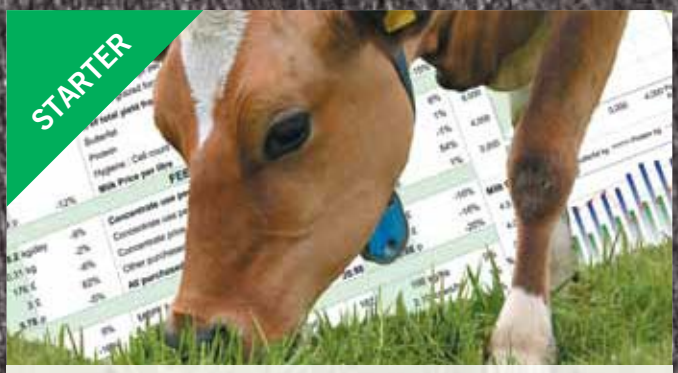

Independent Costings DAIRY MANAGER

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*First two months FREE OF CHARGE does not apply to Profit Manager.

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- Compare all figures to other progressive herds.
- Shows all costs in total £, pence per litre, £ per cow or £ per hectare.
- **Easy to use**: Uses figures from end of year accounts.

Input price analysis: feed, fertiliser and fuel

The three key input costs have all increased in the year to March 2017, although for fuel and fertiliser this reflects a return to March 2015 price levels.

The main costs that fluctuate on dairy farms are the three "f"s (feed, fertiliser and fuel). The past year has seen sharp increases in fuel, fertiliser and straights feeds costs, while compound feeds remain similar.

Red diesel fuel increased by 43%, reaching 55p a litre in March 2017, close to the price in March 2015, while white diesel has increased by 20%.

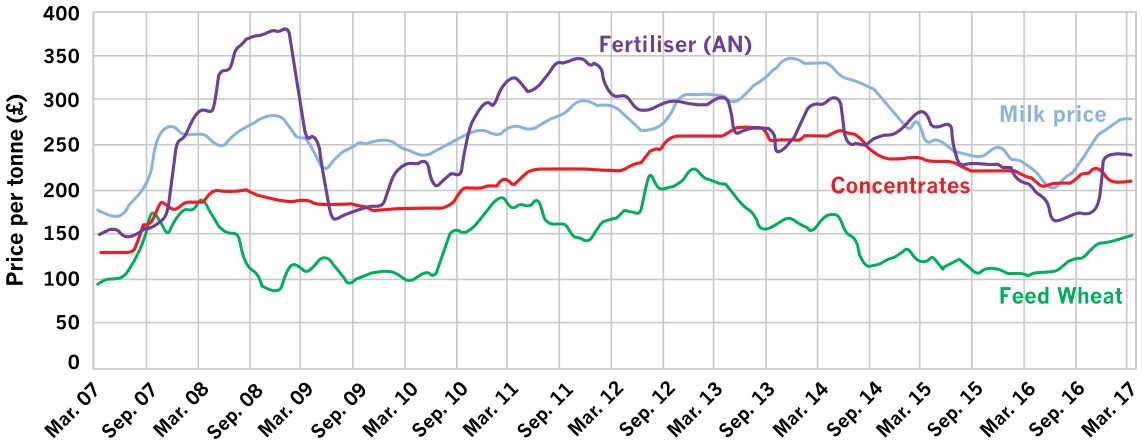
Fertiliser costs were £29 per tonne (Ammonium Nitrate) 14% higher in March 2017 than in 2016 at £241/t, recovering some of the 27% fall in price between March 2015 and 2016. This is still well below the peak price of £349/t for AN in autumn 2011, when fuel prices were also high – with processing having a high demand for energy.

The cost of straight feeds has seen large increases. Soya and feed wheat cost 40% more in March 2017 than a year earlier at £338/t and £152/t, respectively. Rapeseed meal cost 32% more at £209/t and maize gluten has increased by 23% to £170/t. Soya and maize gluten prices are 10% more than two years previously, while feed wheat costs 24% more than in March 2015. While compound feed prices so far have not reflected these increases, this may be due to the timing of raw product price increases and forward buying, which may see prices rise in the months to come.

Profit Manager data shows the most profitable herds have lower costs on most inputs, indicating a focus on the relationship between costs and profits is worthwhile.

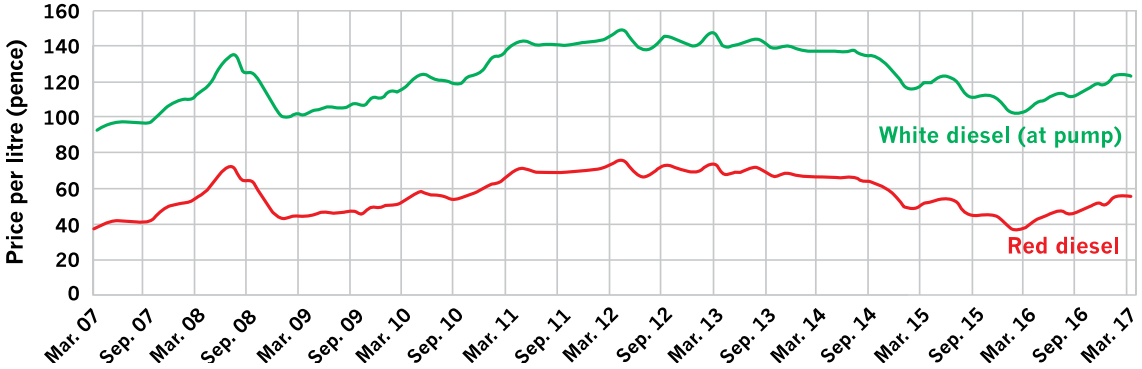
Feed and fertiliser prices vs milk price

Source: AHDB Dairy



Fuel prices

Source: AHDB Dairy



Milk yield bands

All of the 2.8ppl milk price advantage banked by herds yielding above 10,000 litres, compared with the lowest yield band, was spent on increased feed costs per litre in the year to March 2017.

When **Dairy Manager** data is ranked by yield bands, milk price increases with increasing yields. As milk constituent quality is generally lower, this is likely to result from increased total output from the increased herd size seen at higher yields and differences in contracts, which may drive yield level decisions on individual farms. Herd size for herds yielding above 10,000 litres is almost 100 cows higher than the next yield band.

Purchased feed costs rise, as expected, with increasing yields from 5.4ppl for the up to 6,000 litres group, to 8.2ppl for herds above 10,000 litres. When this is deducted from the milk price, the resulting margins over purchased feed per litre are within a small 0.5ppl range across the yield bands from 16.4ppl to 16.9ppl.

However, depending on other costs and capital invested, the extra feed use for higher yielding herds with a higher milk price may be a good management decision, as the margin per cow is doubled for the over 10,000 litre herds at £1,774.

The data shows a lower yield is achieved from forage as yield increases and there is a higher reliance on purchased concentrates, averaging 3.68t a cow for herds yielding over 10,000 litres. Therefore, recent increases in concentrate feed prices will have a greater impact on margins for higher yielding herds. The higher yielding group stocks cows more heavily but still produces less milk from forage per hectare.

Annual results – Year end March 2017

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		141	169	193	211	223	322
Stocking rate	cows/ha	2.13	2.29	2.25	2.33	2.34	2.45
MILK PRODUCTION							
Yield per cow	litres	5,306	6,603	7,513	8,480	9,413	10,696
Yield from all forage per cow	litres	2,528	2,713	2,719	2,541	2,281	2,047
Milk price	pence	21.97	22.87	23.35	23.97	24.33	24.76
FEED							
Concentrate use per cow	kg	1,371	1,885	2,259	2,688	3,199	3,679
Concentrate use per litre	kg	0.26	0.29	0.30	0.32	0.34	0.34
Concentrate price per tonne	£	203	202	205	204	210	204
Other purchased feed cost per cow	£	8	16	29	60	76	124
Total purchased feed cost per cow	£	286	397	493	609	749	874
Total purchased feed cost per litre	pence	5.40	6.02	6.56	7.18	7.95	8.17
All purchased feed @ 86% equivalent per cow	kg	1,427	1,978	2,406	2,963	3,514	4,192
MARGINS							
MOPF per cow	£	879	1,113	1,262	1,424	1,541	1,774
MOPF per litre	pence	16.57	16.85	16.79	16.79	16.38	16.58

Herd size bands

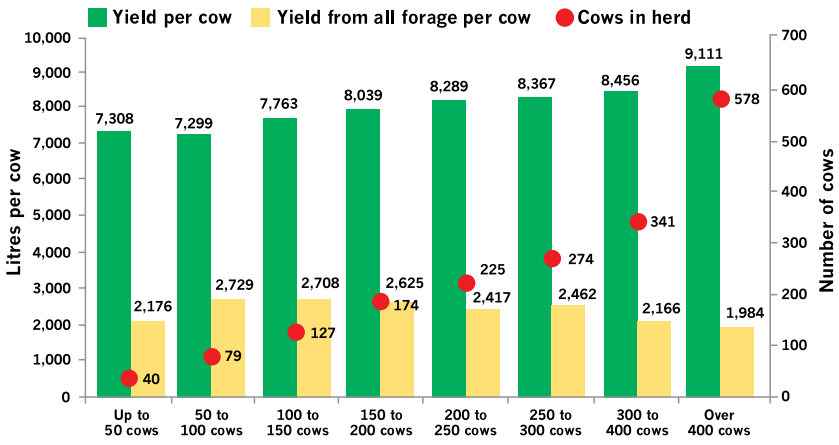
The trend for a higher margin over purchased feed per litre as herd size increases results from increases in the milk price received in the year to March 2017.

Analysis of **Dairy Manager** data by herd size shows herds in the over 400 cow band received a milk price that was 2.6ppl higher than the 50-100 cow band. However, the resulting margin over feed was just 1.7ppl higher, with a clear trend for increasing feed costs as herds become larger too.

In context, the larger the herd the higher yield per cow and stocking rate, which may be beneficial in spreading overhead costs, such as labour, power and machinery. This may justify the additional 0.9ppl spent on feed costs between the 50-100 cow and over 400 cow bands.

A comparison with the 2016 results shows margins per litre falling particularly for herds of 50-100 cows and over 400 cows, by 0.9ppl and 1.2ppl, respectively, as a result of lower milk prices. Even though feed prices have reduced by £4-9/t, similar kg a cow use, lower cow yields and yield from forage result in only small reductions in feed costs per litre of 0 to 0.3ppl across the different bands.

Herd performance by herd size band



Annual results – Year end March 2017									
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		40	79	127	174	225	274	341	578
Stocking rate	cows/ha	1.44	1.89	2.16	2.41	2.39	2.51	2.54	2.75
MILK PRODUCTION									
Yield per cow	litres	7,308	7,299	7,763	8,039	8,289	8,367	8,456	9,111
Yield from all forage per cow	litres	2,176	2,729	2,708	2,625	2,417	2,462	2,166	1,984
Milk price	pence	22.18	22.45	23.34	23.42	24.22	23.73	24.60	25.01
FEED									
Concentrate use per cow	kg	2,436	2,181	2,361	2,514	2,628	2,629	2,766	3,111
Concentrate use per litre	kg	0.33	0.30	0.30	0.31	0.32	0.31	0.33	0.34
Concentrate price per tonne	£	212	215	209	207	200	199	196	195
Other purchased feed cost per cow	£	17	21	37	46	64	68	71	84
Total purchased feed cost per cow	£	534	489	530	566	590	591	614	691
Total purchased feed cost per litre	pence	7.31	6.69	6.83	7.04	7.12	7.06	7.26	7.58
MARGINS									
MOPF per cow	£	1,087	1,150	1,282	1,316	1,417	1,395	1,467	1,588
MOPF per litre	pence	14.87	15.76	16.52	16.37	17.10	16.67	17.34	17.43

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Health trends

Mastitis cases have fallen by 29% from the level five years ago in the average **Health Manager** herd. These 17 fewer cases saved £4,930 per 100 cows in treatment costs and lost milk sales last year.

Cases per 100 cows	2013	2014	2015	2016	2017
Mastitis	58	50	49	49	41
Lameness	46	44	45	45	43

Cases per 100 cows	Group	Top 25%	Est. cost per case	Group cost	Top 25% cost	Difference
Mastitis	41	22	£290	£11,890	£6,380	£5,510
Lameness	43	22	£183	£7,869	£4,026	£3,843
Milk Fever	5.4	2.3	£197	£1,064	£453	£611
Displaced Abomasums	3.2	0.9	£237	£758	£213	£545
Difficult Calvings	5.2	2.7	£342	£1,778	£923	£855
Retained Cleansings	5.9	4.4	£347	£2,047	£1,527	£521
Abortions	3.8	1.5	£424	£1,611	£636	£975
Metritis	8.2	4.7	£189	£1,550	£888	£662
Total				£28,568	£15,047	£13,521

Please note: Most costs per case have reduced since 2014 due to a lower average milk price used in these calculations.

The 2013 results show the average herd had 58 mastitis cases per 100 cows, but last year they had just 41 cases, with a sharp drop from the 2016 incidence of 49 cases. Between 2016 and 2017 results there were also reductions in culling due to mastitis and high cell counts (see page 18). There may be some seasonal effects on annual incidence, particularly last winter when cell counts were also low, but there is also a trend to fewer cases year on year, indicating improvements in managing mastitis.

There have also been reductions in lameness incidence from the 2013 level of 46 cases per 100 cows, down to 43 cases last year, resulting in a saving of £549 per 100 cows last year.

However, for just mastitis and lameness, the results of the top 25% herds show cost savings amounting to £9,353 per 100 cows were achieved last year compared with the average herd incidence. For both health issues, incidence was almost half that of the average.

The top 25% also saw fewer cases of other common health problems than the average herd, although there has been little change in cases for either the top 25% or average in recent years. Their difference in costs between top 25% and average performance was a further £4,168 per 100 cows last year.

The data for top 25% herds indicates scope for continued improvement by focusing on health, particularly mastitis and lameness, to improve profitability, with these savings not easy to see in farm accounts.

Health Manager monitors herd health incidence regularly and calculates the cost per case, giving vital information for managing what are largely invisible costs. Find out how your herd compares.

Cell counts

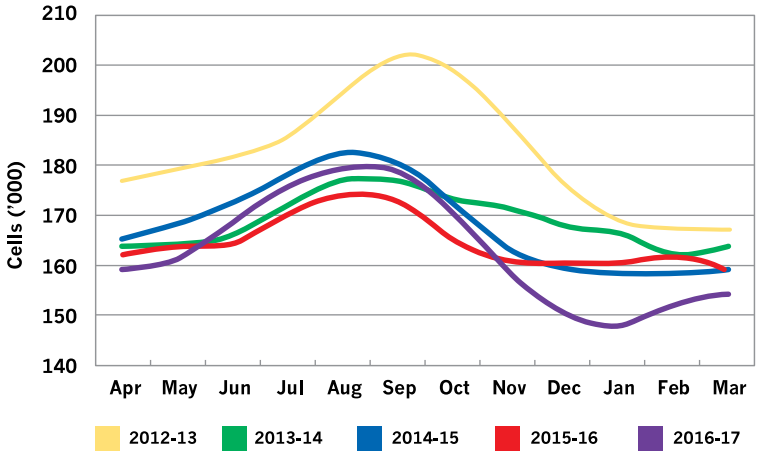
Average somatic cell counts remained below 180,000 in the year to March 2017, as they now have for three of the past four years for **Health Manager** recording herds.

From December 2016 to March 2017, cell counts were the lowest seen in these months compared with historic data, remaining well below 160,000 and dipping below 150,000 for the first time.

Year on year reductions in average annual cell counts are also seen in **Dairy Manager** results for Conventional, Holstein/ Friesian herds. From 2007 to 2010 the average cell count was above 190,000, however, in the most recent four years it has been below 170,000 and at its lowest level of 163,000 in the most recent year.

Managing cell counts at a level below 200,000 is being consistently achieved by the majority of herds to avoid price penalties, with the benefits also seen in the **Health Manager** results for clinical mastitis incidence.

Bulk somatic cell counts



Fertility facts

Improvements in fertility have saved an average performing 150-cow herd, using **Health Manager**, £3,000 compared with the previous year's results, although scope for further gain is evident in the top 25% results.

The main improvements from the 2016 analysis are a four-day shorter calving interval and a two-day reduction in days to first service. The total effect of improvements reduces the cost of infertility by 0.23ppl or £20 a cow, based on calculations for 8,500 litre cows and a 23.5ppl milk price (the average in the year to March 2017).

Fertility results	Group	Top 25%
Calving interval	408	394
Days to first service	76	68
Services per conception	2.8	2.5
Conception rate	37%	47%
100 day in calf rate	35%	49%
200 day not in calf rate	23%	16%
Infertility culling rate	6.8%	5.2%
Cost of infertility (ppl)	2.67	1.58
Cost of infertility (£/Cow)	£227	£134
Cost of extended calving interval per day	£3.91	£3.43

Although very little improvement was made by the top 25% herds in the year, their better results still equate to a 1.1ppl or £93 a cow lower cost of infertility, worth £13,950 a year for a 150-cow herd.

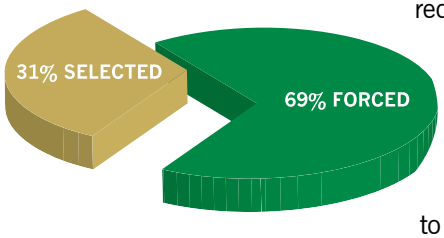
These lower costs are brought about by a reduction in the days to first service, a 10% improvement in conception rate, and an overall reduction in the calving interval by 14 days.

Analyse your herd's fertility costs with our **Health Manager** package. Visit **www.kingshay.com** for more information.

Reasons for cows leaving herd

Individual leaving reasons for cows culled in the year to March 2017 point to more proactive decisions being made on farms, according to **Health Manager** data.

Within the health reasons, fewer culls relate to mastitis and 1% less for lameness, with more attributed to Johne's disease and other health reasons. It is possible this results from ongoing industry campaigns to eradicate cattle diseases. Management reasons for selective culling are also proportionally higher, increasing by 0.8%, while culling for performance reasons has reduced by 0.6%.



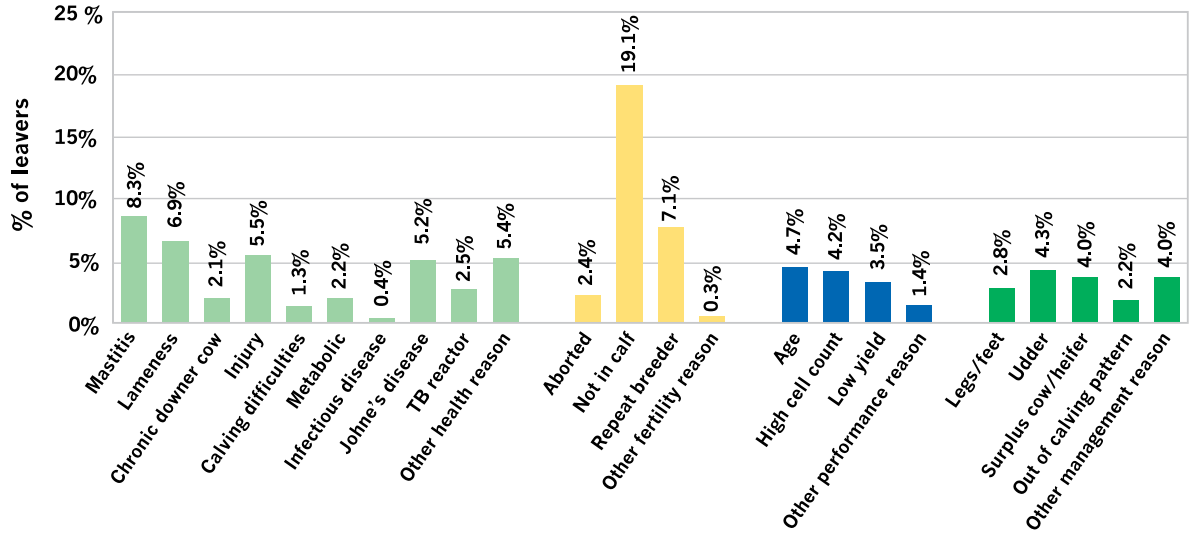
The average rate of cows leaving the herd has increased by 1% to 27%. Interestingly, herds of 150-200 cows have the highest culling rate at 30%, with it decreasing as herd size increases further, down to 26.4% for herds over 300 cows. However, culling rate increases gradually with cow yield and is 1.2% higher for herds above 10,000 litres, than those yielding 9,000-10,000 litres.

The data also shows 50% of cows leaving herds without reaching a fourth lactation. First lactation heifers account for 16.4% of culls, with 30% due to fertility reasons.

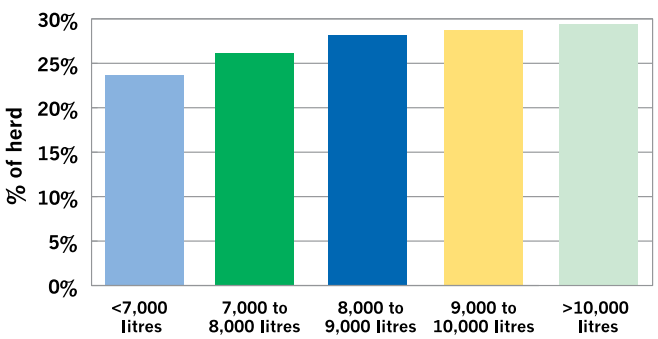
Health Manager is an option within **Dairy Manager** which offers a relatively simple method for monitoring cows leaving the herd against a herd health plan, allowing a prompt reaction to health issues that can help keep replacement costs down.

Further advice on managing health and fertility in individual herds is available from Kingshay, via our One2One consultants, as well as local consultants and vets.

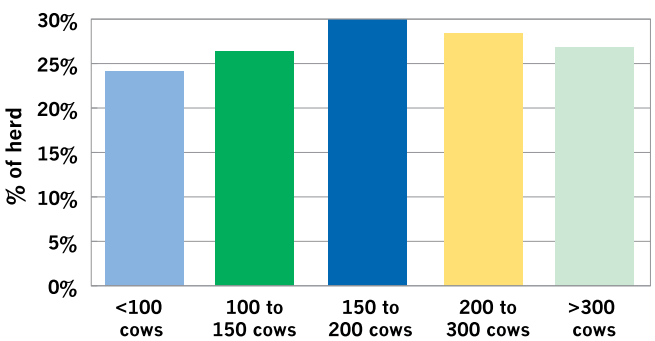
Individual leaving reasons



Cows leaving herd by yield level (culling rate)



Cows leaving herd by herd size band (culling rate)



Organic update

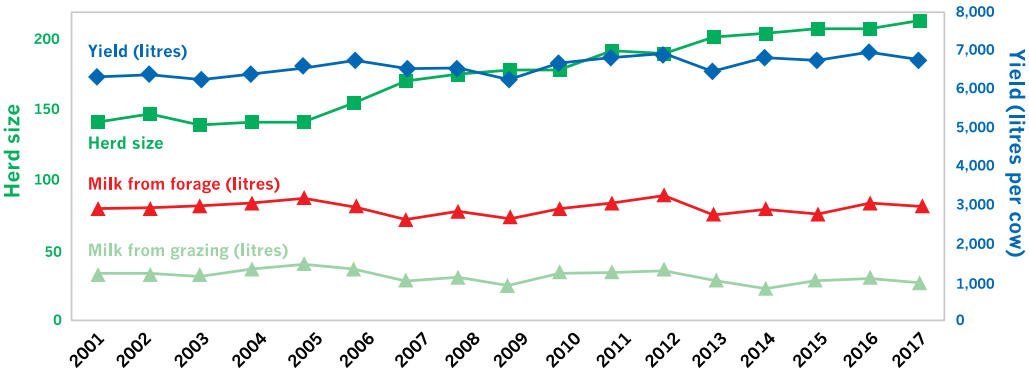
The organic milk price received increased by 0.27ppl in the year to March 2017 and was 13.6ppl higher than the price achieved by Conventional, Holstein/Friesian herds, according to **Dairy Manager** data.

This gap between Holstein/ Friesian, organic and conventional prices has risen from 6.1ppl 10 years ago. Organic feed costs per litre have increased above conventional costs in that time too, but the extra 1.3ppl spent on feed is easily covered by the milk price difference. Whilst several other costs are also higher for organic production, this should give the opportunity for higher margins.

The organic milk market now operates independently of the conventional market. However, the effects of supply moving above demand could have a massive impact with the far lower conventional base price and high feed costs.

The year to March 2017 has seen the average milk from forage reduce by 221 litres a cow with a poorer forage year for all, but still remaining 466 litres above average conventional herds. Likely driven by high prices for organic concentrates, organic producers resisted feeding more and average milk yields reduced by 146 litres a cow. Yet, feed costs still increased by 1.02ppl compared with less than 0.1ppl for conventional herds, who paid £204/t for concentrate feeds compared with £338/t for organic herds.

Trends in milk production and efficiency



Analysis by performance from forage shows the top 25% organic herds achieved 3,834 litres from forage, with a yield of 7,320 litres a cow, whereas the bottom 25% achieved 2,108 litres from a yield of 6,471 litres a cow. The top herds used 380kg less concentrate a cow, which coupled with an 850-litre increase in cow yield, meant feed costs were 8.3ppl. This was 2.9ppl lower than bottom 25% herds at 11.2ppl.

When data is analysed by yield, the 8,000-9,000 litres band achieved the highest performance from forage at 3,122 litres with an 8,332 litre yield per cow. Further evidence feeding high quality, high forage diets results in a smaller compromise on yield than expected.

Margins over purchased feed were similar for organic herds last year, and 12ppl higher than conventional herds. However, over 10 years the organic margin has increased by 8.9ppl compared with 3.6ppl for conventional herds.

Annual rolling results

HOLSTEIN/FRIESIAN, ORGANIC HERDS		Year ending March 2016	Year ending March 2017	Difference	% Change
Cows in herd		219	213	-6	-2.7%
Stocking rate	cows/ha	1.77	1.73	-0.04	-2.3%
MILK PRODUCTION					
Yield per cow	litres	6,894	6,748	-146	-2.1%
Yield from all forage per cow	litres	3,203	2,982	-221	-6.9%
Butterfat	%	4.00	4.00	0.00	0.0%
Protein	%	3.32	3.24	-0.08	-2.4%
Cellcount		185	180	-5	-2.7%
Milk price	pence	37.12	37.39	0.27	0.7%
FEED					
Concentrate use per cow	kg	1,820	1,852	32	1.8%
Concentrate use per litre	kg	0.26	0.27	0.01	3.8%
Concentrate price per tonne	£	313	338	25	8.0%
Other purchased feed cost per cow	£	8	8	0	0.0%
Total purchased feed cost per cow	£	578	634	56	9.7%
Total purchased feed cost per litre	pence	8.38	9.40	1.02	12.2%
All purchased feed @ 86% equivalent per cow	kg	1,851	1,879	28	1.5%
MARGINS					
MOPF per cow	£	1,981	1,889	-92	-4.6%
MOPF per litre	pence	28.74	27.99	-0.75	-2.6%

Channel Island update

Channel Island herds have seen a proportionally higher fall in milk price on average than Conventional, Holstein/Friesian herds at 1.4ppl, with more herds selling on constituent-based contracts, according to **Dairy Manager** results.

The average CI price of 27.5ppl seems little reward for the higher butterfat and protein levels compared with the conventional, Holstein/Friesian price of 23.8ppl in the year to March 2017. However, since last winter milk prices, particularly for constituent and lower paid contracts, average prices have improved and will hopefully continue to increase this year.

While the data shows a 6.6ppl gap between the top and bottom 25% analysed on milk price received, the top 25% produce milk with 0.6% more butterfat and 0.4% more protein, accounting for some of this difference. The top 25% received 30.55ppl. Between March 2016 and 2017 milk yield per cow and milk from forage have reduced, as was seen with Holstein/Friesian and Organic herds, with a slightly poorer growing season. A slight fall in purchased concentrate costs per tonne resulted in feed costs per litre reducing.

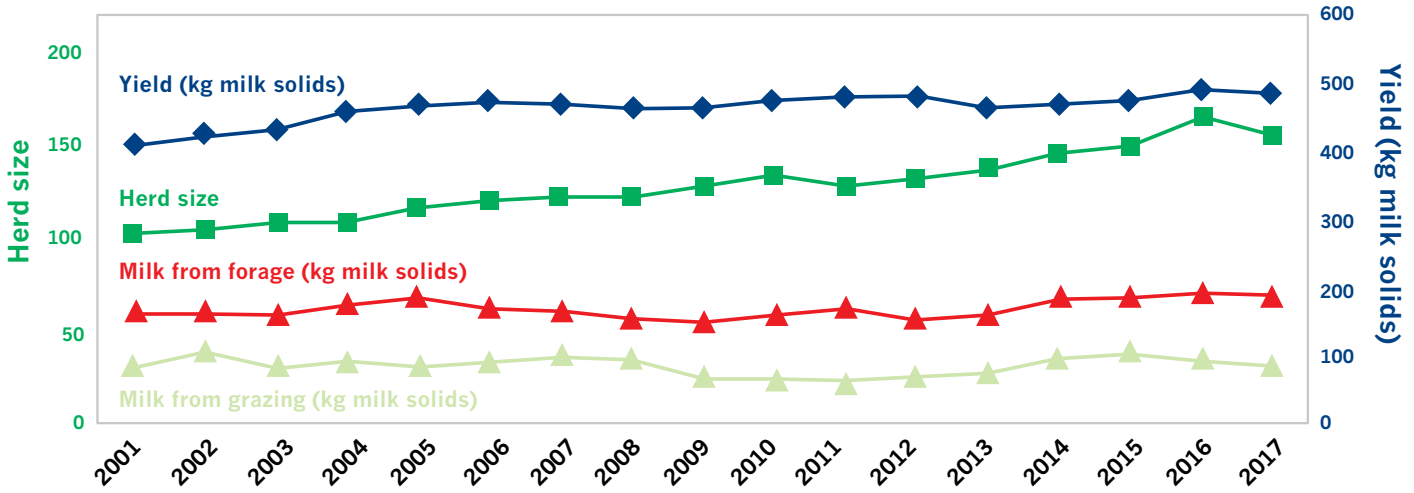
There is a 4ppl gap in purchased feed costs between the top 25% and bottom 25% herds when ranked on milk from forage in the year to March 2017. This is despite similar yields per cow, at 5,400 and 5,580 litres, respectively, and similar milk constituent quality.

The top 25% achieved 2,861 litres from forage, with 1,462kg of concentrate, resulting in a feed cost of 6.2ppl. The bottom 25% achieved less than half the output from forage at 1,178 litres, and fed 2,196kg of concentrate with a feed cost of 10.2ppl.

Annual rolling results

CHANNEL ISLAND, CONVENTIONAL HERDS		Year ending March 2016	Year ending March 2017	Difference	% change
Cows in herd		181	171	-10	-5.5%
Stocking rate	cows/ha	2.67	2.66	-0.01	-0.4%
MILK PRODUCTION					
Yield per cow	litres	5,798	5,526	-272	-4.7%
Yield from all forage per cow	litres	2,129	2,080	-49	-2.3%
Butterfat	%	5.34	5.38	0.04	0.7%
Protein	%	3.84	3.82	-0.02	-0.5%
Milk price	pence	28.92	27.51	-1.41	-4.9%
FEED					
Concentrate use per cow	kg	1,987	1,871	-116	-5.8%
Concentrate use per litre	kg	0.34	0.34	0.00	0.0%
Concentrate price per tonne	£	219	215	-4	-1.8%
Other purchased feed cost per cow	£	47	51	4	8.5%
Total purchased feed cost per cow	£	482	453	-29	-6.0%
Total purchased feed cost per litre	pence	8.31	8.20	-0.11	-1.3%
All purchased feed @ 86% equivalent per cow	kg	2,183	2,082	-101	-4.6%
MARGINS					
MOPF per cow	£	1,195	1,067	-128	-10.7%
MOPF per litre	pence	20.61	19.31	-1.30	-6.3%

Trends in milk production and efficiency



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