# Dairy performance results 2017/18

# Contents

# Glossary

**Buildings depreciation** – imputed depreciation on dairy-specific buildings

**Cash cost of production** – comprises all variable costs, cash overhead costs (power and machinery, property repairs and actual labour, rent and finance, plus other operational costs) and herd replacement costs; excludes depreciation, imputed cost of family labour and imputed rental value of owned land

**Cash net margin** – equals output minus cash cost of production

**Feed and forage cost** – equates to actual cost of all purchased feed and forage, plus market value of all home-grown, non-forage feed and variable cost of home-grown forage

**Forage** – grass silage, hay, non-grass forage and straw (both purchased and home-grown)

**Full economic cost of production** – comprises all variable costs, overhead costs and herd replacement cost, including depreciation, an imputed cost of owned land and unpaid labour

**Full economic net margin** – equals output minus full economic cost of production

**Herd replacement cost** – equates to the value of all animals purchased or transferred into the dairy herd, plus the opening value of the herd, minus the value of all animals sold or transferred out of the dairy herd, minus the closing valuation of the herd

**Herd replacement rate** – is based on the number of cows that have left the herd throughout the year, presented as a percentage share of the herd size

**IFCN** – International Farm Comparison Network, based in Germany

**Labour cost** – actual cost of paid labour plus imputed cost for unpaid labour

**Machinery and equipment depreciation** – imputed depreciation on dairy-specific and forage machinery and equipment

**Milk solids** – butterfat and protein content of milk

**Milk yield** – calculated from the total amount of milk produced in the year, divided by either the herd size to obtain the average yield per cow per year, or by total area allocated to the dairy herd to obtain the average yield per hectare per year

**Non-forage feeds** – comprise purchased compound feed, cereals, protein feeds and by-products, plus home-grown cereals, protein feeds and by-products

**Other livestock cost** – comprises artificial insemination and breeding costs, bedding costs and dairy/livestock sundries, including parlour

**Other operational costs** – comprise water and telephone charges, general insurances, professional fees and other office-related costs

**Output** – comprises the value of milk produced, value of calves at 20 days and other dairy income (slurry to arable land, etc.)

**Output-to-input ratio** – calculated by dividing output (milk and other income) by full economic cost of production

**Overheads (excluding rent and finance)** – overheads of the herd, including depreciation and unpaid labour but excluding the rent and finance

**Power and machinery cost** – comprises repairs and spares, machinery hire, contracting, fuel, electricity and vehicle tax and insurance

**Rental value of owned land** – imputed (notional) rent on the hectares of owned land used for the dairy herd (grassland and forage areas)

# *Dairy performance results 2017/18 at a glance*

## Executive summary

British dairy farmers continue to face challenges, including milk price volatility, uncertainty over the UK's exit from the European Union and competition from other dairy exporting nations, both on global markets and on domestic shop shelves. With this in mind, it is as important as ever to regularly review the direction, goals, strategy and costs of your dairy business.

Milk production costs have risen by around 1.1 pence per litre (ppl) overall in 2017/18, compared with the previous year. The top 25% and middle 50% of farms across all three calving systems made a positive full economic net margin in 2017/18. It is worth bearing in mind the GB annual average milk price in 2017/18 was just over 1 ppl higher than the longer-term five-year average milk price, which will have partly helped support margins this year. However, the top 25% across all three systems had full economic production costs below the five-year average milk price, making them more likely to be able to ride out future milk price volatility. This highlights the importance of sound management, whichever system is being operated.

The main areas in which top dairy farms performed better were herd replacement costs, feed and forage costs, power and machinery and unpaid labour. Data from dairy farms in other major exporting dairy countries also showed the competiveness of the typical UK farm was adversely affected by its high machinery costs, despite competing relatively well across most other areas of cost.

## About the report

This report provides full economic costings of GB dairy herds for three different calving systems: all-year-round (AYR), autumn block and spring block. The figures allow dairy farmers to compare the performance of their own business to others operating the same system and help identify areas in which changes might improve profit margins.

Dairy farmers considering changing calving pattern will also find it useful to compare their figures with different systems as part of their decision-making process. It is crucial to also consider which system best fits the resources available on farm, milk buyer and contract and individual farmer mindset, as well as the costs involved in changing system. It is worth bearing in mind the difference in herd sizes between systems: the top 25% of spring calvers average nearly 100 more cows than the top AYR herds and around 50 more cows than the top autumn calvers.

More information on considerations for the different systems is available on the **Optimal Dairy Systems** section of our website.

This report includes a comparison between a typical UK farm and its counterparts in other dairy exporting nations, to gauge how the UK is competing on global markets.

## How the figures are calculated

Costings data come from around 350 conventional dairy farms in Great Britain (excluding organic farm data), with financial year-ends between December 2017 and June 2018.

**The GB figures in this report are for the dairy herd only, excluding youngstock returns and costs. The value of incoming heifers is included within the herd replacement cost, but report users must note this does not fully reflect true youngstock rearing costs for individual farms. Subsidies are also excluded.**

Farms were ranked by the ratio of their outputs to inputs, to give a measure of productivity and profitability. Averages were then calculated for the top 25%, middle 50% and bottom 25%, based on this ranking. For more detail on how the figures are calculated, please turn to **Appendices 1–4**.

The international data provided in this report come from typical farms included in the International Farm Comparison Network (IFCN), in which AHDB participates. This methodology differs from the GB data – details are included in the **How is British dairying competing globally?** section and **Appendix 1**.

## Key findings

- GB milk production costs increased by around 1.1 ppl overall in 2017/18, compared with the previous year
- The top 25% and middle 50% across all three calving systems made a positive full economic net margin in 2017/18 (Table 1)

Table 1. Summary of full economic net margin in ppl (pence per litre) for the top 25%, middle 50% and bottom 25% of dairy farms in 2017/18, by calving system

| | All-year-round | Autumn | Spring |
|---|---|---|---|
| Top 25% (ppl) | 5.3 | 9.3 | 11.0 |
| Middle 50% (ppl) | 0.8 | 3.7 | 6.6 |
| Bottom 25% (ppl) | –6.7 | 0.1 | 0.1 |

- The top 25% performing farms in each calving system all had 2017/18 milk production costs below the five-year average milk price of 28 ppl (Table 2). This shows that a well-managed dairy enterprise is best placed to withstand milk price volatility, regardless of which system it operates

Table 2. Summary of full economic cost of production for the top 25%, middle 50% and bottom 25% of dairy farms in 2017/18, by calving system

| | All-year-round | Autumn | Spring |
|---|---|---|---|
| Top 25% (ppl) | 26.2 | 22.6 | 23.1 |
| Middle 50% (ppl) | 29.9 | 28.8 | 26.9 |
| Bottom 25% (ppl) | 36.7 | 31.6 | 31.5 |

- The three largest cost drivers for the difference in net margin between the top and bottom 25% of farms in 2017/18 were:

| All-year-round | Autumn | Spring |
|---|---|---|
| Herd replacement cost | Feed and forage costs | Herd replacement cost |
| Power and machinery | Power and machinery | Feed and forage costs |
| Unpaid labour | Unpaid labour | Unpaid labour |

- High machinery costs were the biggest factor affecting the competitiveness of the typical UK farm against farms in other dairy exporting nations. However, the UK farm was able to compete relatively well across most other areas of cost

# Measuring success

## Key performance indicators for optimal dairy systems

The dairy industry uses over 70 measures of performance, so it can be difficult to prioritise the key areas when trying to make improvements. As part of our Optimal Dairy Systems work, we have identified a small group of operational key performance indicators (KPIs) for each calving system, as well as business measures that apply to all systems. These are summarised in Tables 3 and 4 and are referred to in the results sections for each system.

Table 3. Operational dairy enterprise KPIs

| AYR calving systems | Block calving systems |
|---|---|
| Pregnancy rate (%) | Cows and heifers calved within the first six weeks (%) |
| Age at first calving (months) | Herd replacement rate (%) |
| Total purchased feed costs (ppl) | Milk solids output per hectare (kg MS/ha) |
| Average daily lifetime yield (litres/day) | Milk yield from forage (litres) and (solids) |
| Overheads (excluding rent and finance) (ppl) | Overheads (excluding rent and finance) (ppl) |
| Genetic merit (percentile) | Genetic merit (percentile) |

Table 4. Business financial measures for the dairy-livestock enterprise (includes youngstock) across all systems

| Business financial measures |
|---|
| Full economic net margin (ppl) |
| Full economic cost production (ppl) |
| Return on tenant's-type capital (%) |

**These KPIs and financial measures undergo reviews to ensure they continue to be relevant to the industry and systems they represent.**

**Please visit ahdb.org.uk/optimal-dairy-systems to see the current KPI definitions in more detail.**

**You can also access an online calculator via the webpage, where you can enter your own figures to see how your herd is performing and prioritise areas to focus on.**

## Characteristics of the top-performing farms

As part of our Horizon series on Brexit, our report ***Preparing for change: the characteristics of top-performing farms*** identifies eight factors that set apart the top-performing farms across the sectors, not just in dairy:

1. Minimise overhead costs
2. Set goals and budgets
3. Compare yourself with others and gather information
4. Understand the market
5. Focus on detail
6. Have a mindset for change and innovation
7. Continually improve people management
8. Specialise

It can prove time well spent to take a step back from the day-to-day running of the farm  and spend some time considering the dairy enterprise against these factors. This report can help by providing figures to compare against, as well as highlighting areas for potential improvements where large gaps are seen between the top and bottom farms.

# Changes in milk production costs over time

GB milk production costs increased by around 1.1 ppl overall in 2017/18 – a rise of 4% compared with the previous year (Figure 1). The biggest contributors to this were feed and forage costs, which increased by 6% in total. Rises across other areas were also seen, including bedding, paid labour and machinery and buildings repairs.

The figures in this report include a particularly challenging winter for many GB regions, with financial year-ends between December 2017 and June 2018 covered. This was followed by an exceptionally dry summer, which will have added further costs for many farms. However, the period of drought will largely fall under the 2018/19 figures, when they become available.

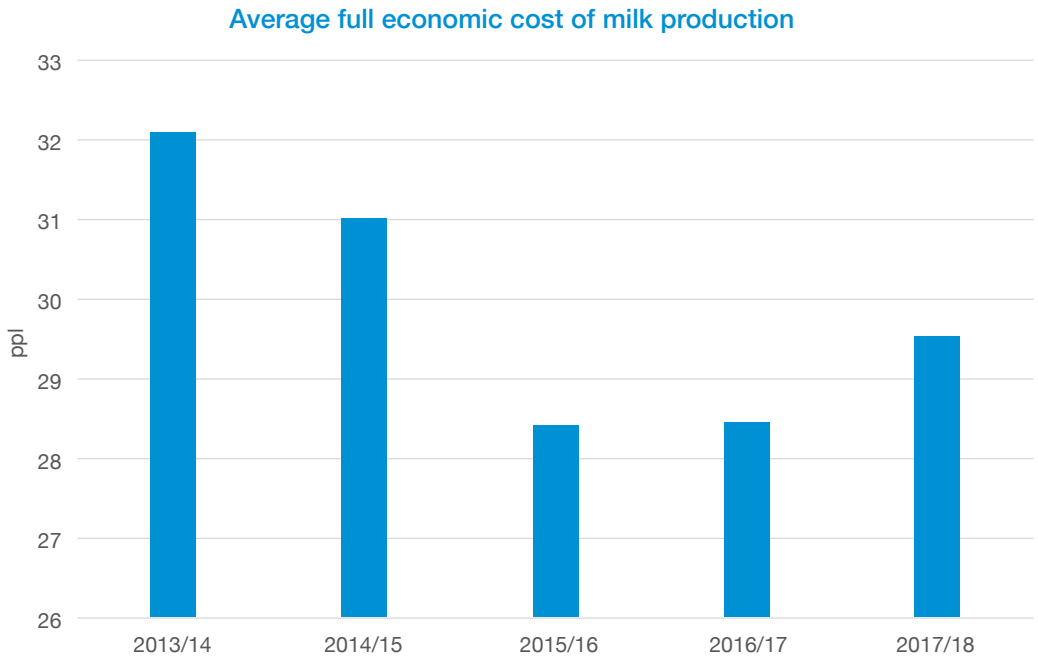



Figure 1. Average full economic cost of milk production over the last five years for conventional GB dairy farms, based on a representative sample across all calving systems

Source: AHDB Dairy, Promar International and partners

# All-year-round calving herds' performance 2017/18

## Overview

There is a 12 ppl difference in full economic net margin between the top and bottom 25% of AYR calving herds, largely because the most profitable farms' costs are 10.5 ppl lower. Breaking this difference in costs down further shows that more than half of the gap can be attributed to just three areas: herd replacement cost, power and machinery and unpaid labour.

On the next page, we look at unpaid labour costs to attempt to unpick how the top 25% might do things better. Herd replacement costs are further discussed in the **Spring-calving herds' performance** section, and machinery features in the **How is British dairying competing globally?** section, which compares GB dairy farming internationally.

## About the figures

Accounts from 268 AYR calving GB dairy herds have been analysed to produce the physical, financial and KPI data in this section. Figures are shown for the most and least profitable 25% of farms, as well as those in the middle. The spread of systems present in GB means there are more AYR herds in the sample than block calvers – as a result, there may be more variation within the AYR results than the block calving results.

Aggregating farms into performance brackets to look for trends and insights will inevitably hide a variety of individual herd structures and performance within each bracket. The top 25% includes farms with as few as 85 cows and up to around 850 cows and yields from around 5,500 litres per cow up to nearly 13,000 litres per cow. Full economic net margin also varied in this top set, from around 3 ppl to 11 ppl.

## Physical and financial performance

As part of our Optimal Dairy Systems work, we identified several KPIs for AYR systems, which are highlighted with a blue outline in Tables 5 and 6. Financial data on a £ per cow and £ per hectare basis can also be found in **Appendix 5**.

Table 5. Physical performance of AYR calving conventional dairy herds in 2017/18

| | Top 25% | Middle 50% | Bottom 25% |
|---|---|---|---|
| **Herd** | | | |
| Average herd size | 278 | 233 | 159 |
| Dairy stocking density (LU/ha) | 2.2 | 1.9 | 1.8 |
| Labour – paid and unpaid (hours/cow/year) | 30 | 37 | 41 |
| **Milk production** | | | |
| Milk production (l/cow/year) | 8,465 | 8,328 | 7,235 |
| Milk solids production (kg/cow/year) | 652 | 628 | 557 |
| Average butterfat (%) | 4.14 | 4.05 | 4.15 |
| Average protein (%) | 3.33 | 3.27 | 3.33 |
| Milk yield from forage (l/cow/year) | 2,544 | 2,136 | 1,680 |
| **Calving** | | | |
| Age at first calving (months) | 27 | 27 | 28 |
| Calving interval (days) | 393 | 396 | 401 |
| **Culling** | | | |
| Herd replacement rate (%) | 27 | 28 | 30 |
| Number of lactations | 3.9 | 3.7 | 3.7 |

Table 6. Financial performance of AYR calving conventional dairy herds in 2017/18*

| | ppl | | | £ per kg of milk solids | | |
|---|---|---|---|---|---|---|
| | Top 25% | Middle 50% | Bottom 25% | Top 25% | Middle 50% | Bottom 25% |
| **Output** | | | | | | |
| Milk sales | 29.8 | 29.0 | 28.3 | 3.87 | 3.85 | 3.67 |
| Other income | 1.7 | 1.7 | 1.8 | 0.22 | 0.23 | 0.23 |
| **Total output** | **31.5** | **30.8** | **30.0** | **4.10** | **4.08** | **3.90** |
| **Herd replacement costs** | **2.5** | **2.8** | **4.8** | **0.33** | **0.37** | **0.62** |
| **Variable costs** | | | | | | |
| Purchased concentrates | 7.2 | 7.7 | 8.2 | 0.94 | 1.02 | 1.06 |
| Purchased forage and short-term keep | 1.0 | 0.7 | 0.6 | 0.13 | 0.09 | 0.08 |
| Home grown concentrate and forage costs | 1.1 | 1.2 | 1.4 | 0.14 | 0.17 | 0.18 |
| **Total feed and forage costs** | **9.3** | **9.6** | **10.1** | **1.21** | **1.28** | **1.32** |
| Veterinary and medicine costs | 0.9 | 1.0 | 1.2 | 0.12 | 0.13 | 0.15 |
| Other livestock costs | 2.0 | 2.3 | 2.3 | 0.26 | 0.30 | 0.29 |
| **Total variable costs** | **12.2** | **12.9** | **13.6** | **1.59** | **1.71** | **1.77** |
| **Overhead costs** | | | | | | |
| Labour (paid) | 2.4 | 2.5 | 2.4 | 0.31 | 0.33 | 0.31 |
| Power and machinery | 2.9 | 3.7 | 4.5 | 0.37 | 0.50 | 0.59 |
| Property repairs | 0.4 | 0.5 | 0.9 | 0.05 | 0.07 | 0.11 |
| Rent | 0.9 | 0.9 | 0.6 | 0.12 | 0.12 | 0.08 |
| Finance | 0.6 | 0.8 | 1.3 | 0.08 | 0.11 | 0.17 |
| Other operational costs | 0.9 | 1.1 | 1.4 | 0.12 | 0.15 | 0.18 |
| **Total cash costs** | **22.8** | **25.1** | **29.5** | **2.96** | **3.34** | **3.84** |
| **Cash net margin** | **8.7** | **5.6** | **0.5** | **1.13** | **0.74** | **0.06** |
| Labour (unpaid) | 1.7 | 2.5 | 3.7 | 0.22 | 0.34 | 0.49 |
| Machinery and equipment depreciation | 1.2 | 1.4 | 2.2 | 0.15 | 0.19 | 0.29 |
| Buildings depreciation | 0.2 | 0.2 | 0.3 | 0.03 | 0.03 | 0.04 |
| Rental value of owned land | 0.4 | 0.6 | 0.9 | 0.05 | 0.08 | 0.12 |
| **Overheads (excluding rent and finance)** | **9.6** | **12.0** | **15.5** | **1.25** | **1.59** | **2.01** |
| **Full economic cost of production** | **26.2** | **29.9** | **36.7** | **3.41** | **3.97** | **4.77** |
| **Full economic net margin** | **5.3** | **0.8** | **-6.7** | **0.69** | **0.11** | **-0.87** |

*GB figures in this report are for the dairy herd only, excluding youngstock output and costs. The value of incoming heifers is included within the herd replacement cost, but report users must note this does not fully reflect youngstock rearing costs. Totals may not tally exactly, due to rounding.

## All-year-round calving topic in focus: Unpaid labour

Unpaid labour costs for the most profitable farms were less than half of those for the bottom 25% in 2017/18. On the other hand, paid labour costs did not vary with performance (Figure 2). Looking at labour in terms of the number of hours spent per cow per year shows the same story, with more unpaid labour hours used by poorer performing farms. As a result, the top farms had higher productivity per labour unit, producing an extra 100 litres of milk per hour of labour compared with the bottom 25% (Figure 3).

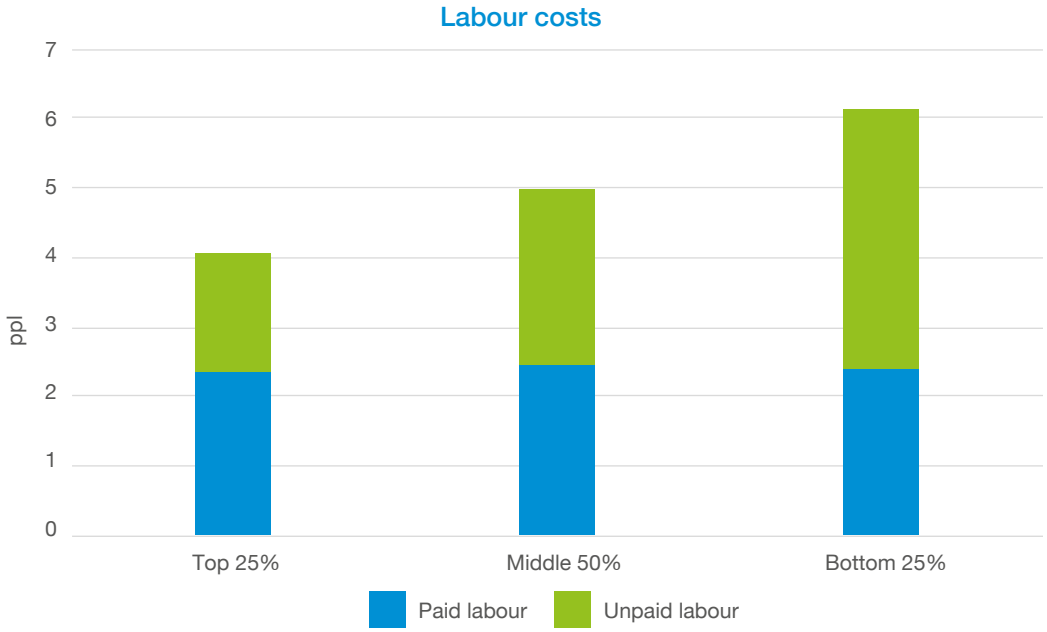



Figure 2. Paid and unpaid labour costs for AYR herds in 2017/18

Source: AHDB Dairy, Promar International and partners

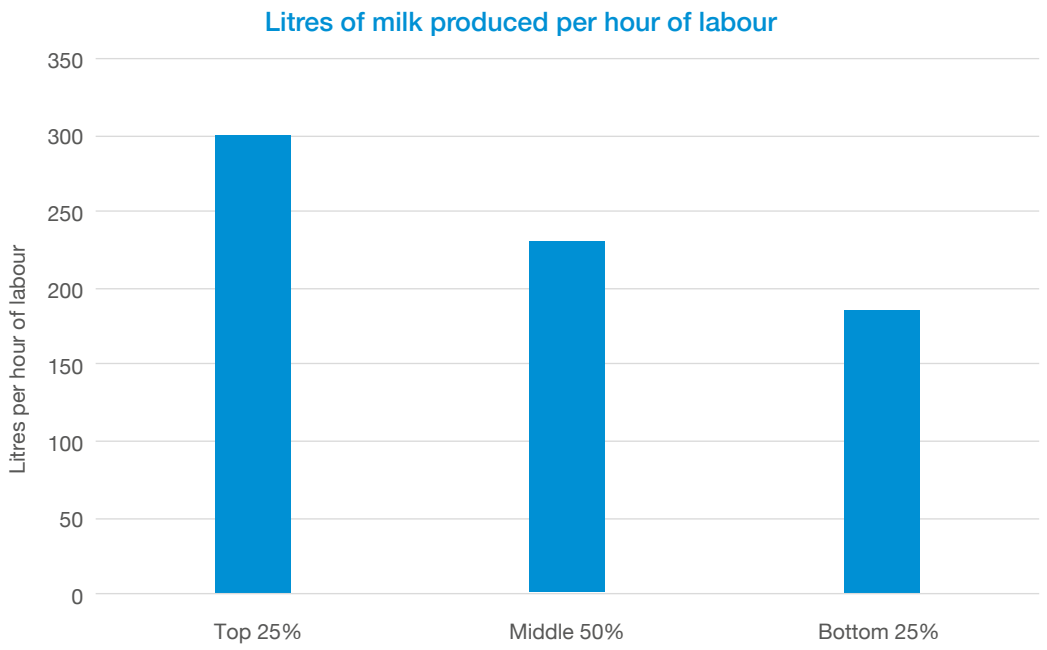



Figure 3. Litres of milk produced per hour of labour used for AYR herds in 2017/18

Source: AHDB Dairy, Promar International and partners

Although unpaid labour is not a cash cost (i.e., wages do not physically leave the farm bank account), it is still important: the people providing the unpaid labour will need to draw money to cover their living expenses, so the business needs to account for this. Farms in the bottom 25% had higher unpaid labour costs and used 13 extra unpaid labour hours per cow per year. For a herd of 100 cows, this amounts to 3.5 hours of extra work every single day for 365 days of the year.

So how do farms in the top 25% keep their labour hours per cow down? Part of the answer appears to be linked to the larger scale of the operation, but this is far from the whole story. The 2017/18 data show around 15% of the variation in total labour hours per cow (both paid and unpaid) may be explained by herd size. The remaining 85% of variation is due to other factors beyond the scope of the data available, which are likely to centre around how efficiently labour is utilised or the set-up of the facilities on farm. Another possible factor is that farms relying heavily on unpaid labour may have less time available to concentrate on farm management. This could lead to poorer herd performance as a result.

## Evaluating farm labour

- Working out your paid labour costs is relatively straightforward, but working out the cost of unpaid labour can be more difficult because calculation methods vary. To benchmark your business directly against the figures in this report, take the number of unpaid hours worked on the farm each year, divide by 2,860 hours (i.e., the annual hours for one full-time equivalent worker) then multiply by an annual wage of £30,000. This gives total spend, which can be divided per litre, per cow and so on, to compare with tables in this report
- Consider whether you are using your unpaid labour hours efficiently to get the best value from them. For example, are you able to give enough of your time to farm management? If not, there may be ways to reduce the time you spend on daily farming tasks to free up management time. This could involve changes to the way tasks are done on farm. It is important to consider this before turning to additional paid labour. Chapter 1 of the ***Teagasc Farm Labour Manual*** provides a step-by-step guide to identify possible options to free up time and decide whether extra paid labour is needed
- Regularly examine whether paid labour is being managed as effectively as possible – continual improvement of people management was recently identified as one of eight factors seen on most profitable farms across all sectors. Some suggested starting points are included in our Horizon report on ***Preparing for change***, on pages 18 and 19
- KPIs to keep an eye on include:
  - Overheads (excluding rent and finance)
  - Full economic cost of production

# Autumn block calving herds' performance 2017/18

## Overview

There is a 9.2 ppl difference in full economic net margin between the top and bottom 25% of autumn-calving herds, largely because the most profitable farms' costs are 9 ppl lower. Breaking this difference in costs down further shows nearly two-thirds of the gap can be attributed to just three areas: feed and forage costs, power and machinery and unpaid labour.

Feed and forage costs are explored on the next page, to attempt to unpick how the top 25% might do things better. Unpaid labour costs are further discussed in the **All-year-round calving herds' performance 2017/18** section, and machinery features in the **How is British dairying competing globally?** section, which compares GB dairy farming internationally.

## About the figures

Accounts from 34 autumn-calving GB dairy herds have been analysed to produce the physical, financial and KPI data in this section. Figures are shown for the most and least profitable 25% of farms, as well as those in the middle. The spread of systems present in GB means there are fewer block calving herds in the sample than AYR farms. As a result, there may be less variation within the autumn and spring results than within the AYR results.

Aggregating farms into performance brackets to look for trends and insights will inevitably hide a variety of individual structures and performance within each bracket. The top 25% includes farms with around 100 cows and up to 600 cows and yields from around 5,500 litres per cow up to around 9,000 litres per cow. Full economic net margin also varied in this top set, from around 6 ppl to 11 ppl.

## Physical and financial performance

As part of our Optimal Dairy Systems work, we identified several KPIs for block calving systems. These are highlighted with a blue outline in Tables 7 and 8. Financial data on a £ per cow and £ per hectare basis can also be found in **Appendix 6**.

Table 7. Physical performance of autumn block calving conventional dairy herds in 2017/18

| | Top 25% | Middle 50% | Bottom 25% |
|---|---|---|---|
| **Herd** | | | |
| Average herd size | 310 | 244 | 183 |
| Dairy stocking density (LU/ha) | 1.8 | 1.8 | 1.8 |
| Labour – paid and unpaid (hours/cow/year) | 38 | 42 | 43 |
| **Milk production** | | | |
| Milk production (l/cow/year) | 7,329 | 7,721 | 7,516 |
| Milk solids production (kg/cow/year) | 582 | 604 | 584 |
| Average butterfat (%) | 4.10 | 4.22 | 4.07 |
| Average protein (%) | 3.61 | 3.38 | 3.47 |
| Milk solids output per hectare (kg milk solids/hectare) | 1,047 | 1,126 | 1,052 |
| Milk yield from forage (l/cow/year) | 3,257 | 2,166 | 2,791 |
| Milk yield from forage (kg milk solids/cow/year) | 259 | 169 | 217 |
| **Calving** | | | |
| Age at first calving (months) | 25 | 24 | 25 |
| Calving interval (days) | 390 | 391 | 385 |
| **Culling** | | | |
| Herd replacement rate (%) | 25 | 26 | 24 |
| Number of lactations | 4.8 | 4.1 | 4.0 |

Table 8. Financial performance of autumn calving conventional dairy herds in 2017/18*

| | ppl | | | £ per kg of milk solids | | |
|---|---|---|---|---|---|---|
| | Top 25% | Middle 50% | Bottom 25% | Top 25% | Middle 50% | Bottom 25% |
| **Output** | | | | | | |
| Milk sales | 29.4 | 30.3 | 28.7 | 3.70 | 3.87 | 3.70 |
| Other income | 2.5 | 2.2 | 2.9 | 0.32 | 0.28 | 0.37 |
| **Total output** | **31.9** | **32.5** | **31.7** | **4.02** | **4.15** | **4.08** |
| **Herd replacement costs** | **2.0** | **3.1** | **3.0** | **0.26** | **0.39** | **0.39** |
| **Variable costs** | | | | | | |
| Purchased concentrates | 5.1 | 6.8 | 5.8 | 0.64 | 0.87 | 0.75 |
| Purchased forage and short-term keep | 0.2 | 1.1 | 1.3 | 0.02 | 0.14 | 0.17 |
| Home-grown concentrate and forage costs | 1.1 | 1.3 | 1.4 | 0.14 | 0.17 | 0.18 |
| **Total feed and forage costs** | **6.4** | **9.2** | **8.5** | **0.81** | **1.17** | **1.10** |
| Veterinary and medicine costs | 0.8 | 1.0 | 1.5 | 0.10 | 0.13 | 0.20 |
| Other livestock costs | 1.7 | 2.2 | 1.9 | 0.22 | 0.28 | 0.24 |
| **Total variable costs** | **8.9** | **12.4** | **12.0** | **1.13** | **1.58** | **1.54** |
| **Overhead costs** | | | | | | |
| Labour (paid) | 2.6 | 2.8 | 2.4 | 0.33 | 0.35 | 0.31 |
| Power and machinery | 2.6 | 3.4 | 4.4 | 0.33 | 0.43 | 0.57 |
| Property repairs | 0.7 | 0.6 | 0.8 | 0.09 | 0.08 | 0.11 |
| Rent | 0.4 | 1.1 | 1.4 | 0.05 | 0.14 | 0.18 |
| Finance | 0.1 | 0.4 | 0.5 | 0.01 | 0.05 | 0.06 |
| Other operational costs | 0.9 | 1.0 | 1.2 | 0.11 | 0.13 | 0.16 |
| **Total cash costs** | **18.3** | **24.7** | **25.7** | **2.31** | **3.16** | **3.31** |
| **Cash net margin** | **13.6** | **7.8** | **6.0** | **1.71** | **1.00** | **0.77** |
| Labour (unpaid) | 1.8 | 2.2 | 3.6 | 0.23 | 0.28 | 0.47 |
| Machinery and equipment depreciation | 0.3 | 0.7 | 0.9 | 0.03 | 0.09 | 0.11 |
| Buildings depreciation | 0.8 | 0.4 | 0.4 | 0.09 | 0.06 | 0.06 |
| Rental value of owned land | 1.4 | 0.8 | 0.9 | 0.18 | 0.10 | 0.12 |
| **Overheads (excluding rent and finance)** | **9.7** | **11.1** | **13.8** | **1.22** | **1.42** | **1.78** |
| **Full economic cost of production** | **22.6** | **28.8** | **31.6** | **2.84** | **3.68** | **4.06** |
| **Full economic net margin** | **9.3** | **3.7** | **0.1** | **1.18** | **0.47** | **0.01** |

*GB figures in this report are for the dairy herd only, excluding youngstock output and costs. The value of incoming heifers is included within the herd replacement cost, but report users must note this does not fully reflect youngstock rearing costs. Totals may not tally exactly, due to rounding.

## Autumn block calving topic in focus: Feed and forage costs

Total feed and forage costs were 2.1 ppl lower for the top 25% of autumn-calving herds in 2017/18 than the bottom 25%. Although purchased concentrate costs were lower for the top 25%, the greatest different between top and bottom farms was in purchased forage costs: 1.1 ppl more was spent on purchased forage in the bottom 25% of herds (Figure 4). The same pattern was also seen on a £ per cow basis.

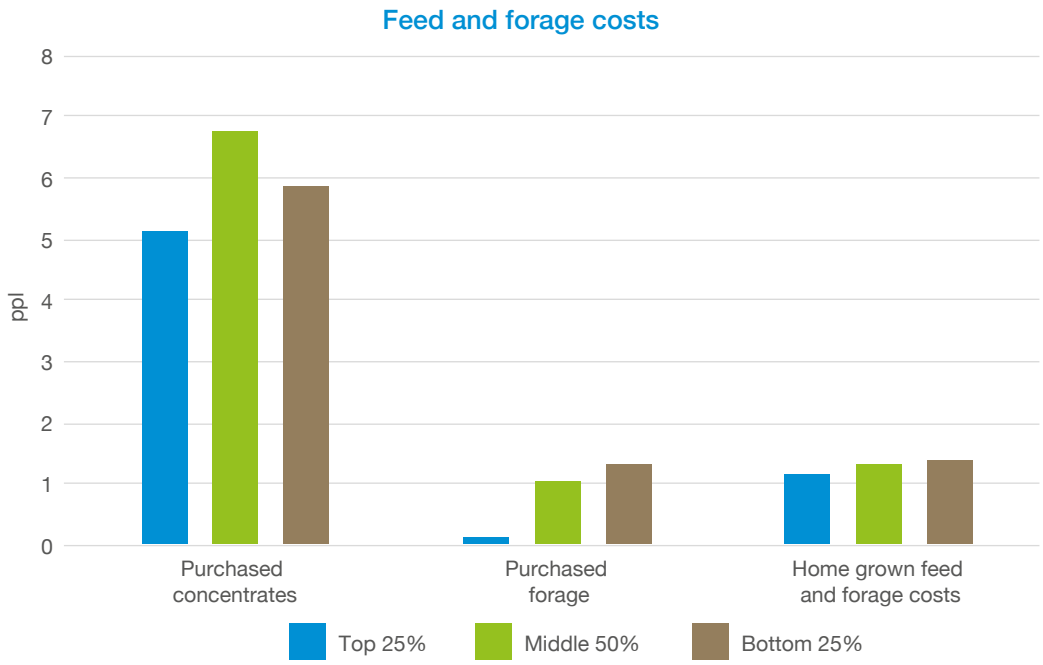



Figure 4. Breakdown of feed and forage costs for autumn block calvers in 2017/18

Source: AHDB Dairy, Promar International and partners

Purchased forage costs increased markedly for the middle 50% and bottom 25% of autumn-calving herds in 2017/18, compared with 2016/17 (Figure 5) and against average figures for the previous 5 years. Meanwhile, purchased concentrate costs showed only a modest rise of 15% (less than 1 ppl) for the middle 50% and decreased slightly for the top and bottom 25%.

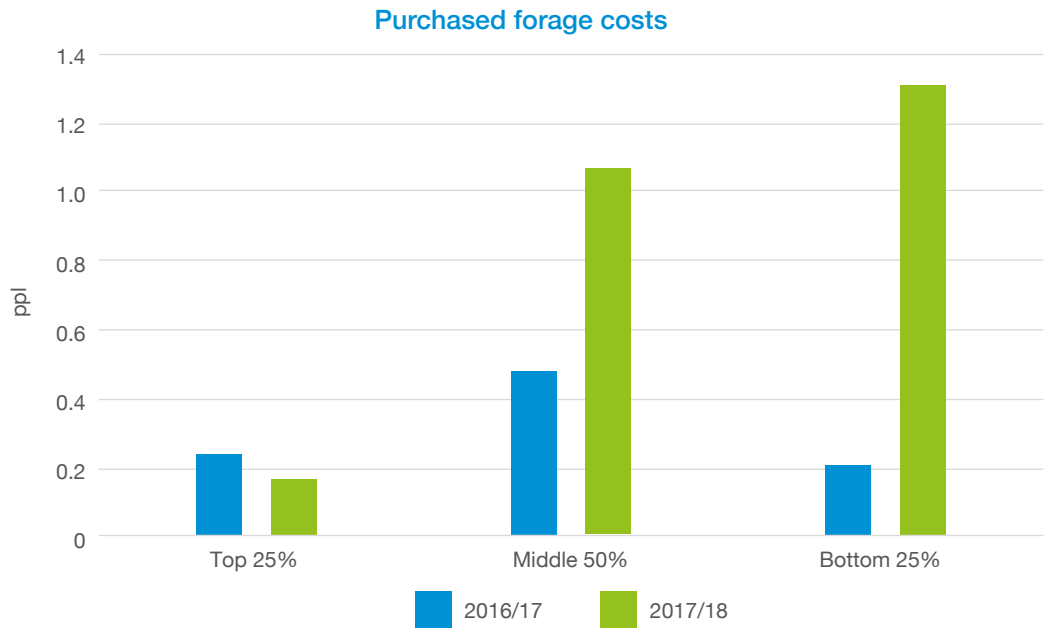



Figure 5. Change in purchased forage costs for autumn-calving herds in 2017/18 compared with 2016/17

Source: AHDB Dairy, Promar International and partners

These data cover a time period which included a challenging winter – with some areas of the country affected particularly badly – and autumn-calving cows would have been in peak lactation during this period. The data suggest that some farms may have attempted to preserve or even boost yields by buying in more forage during 2017/18. However, the top 25% do not appear to have attempted this strategy and this is reflected in milk solids production across the groups: the top 25% seem to have accepted lower yields, while the middle 50% and bottom 25% seem to have attempted to feed to preserve yields (Figure 6).

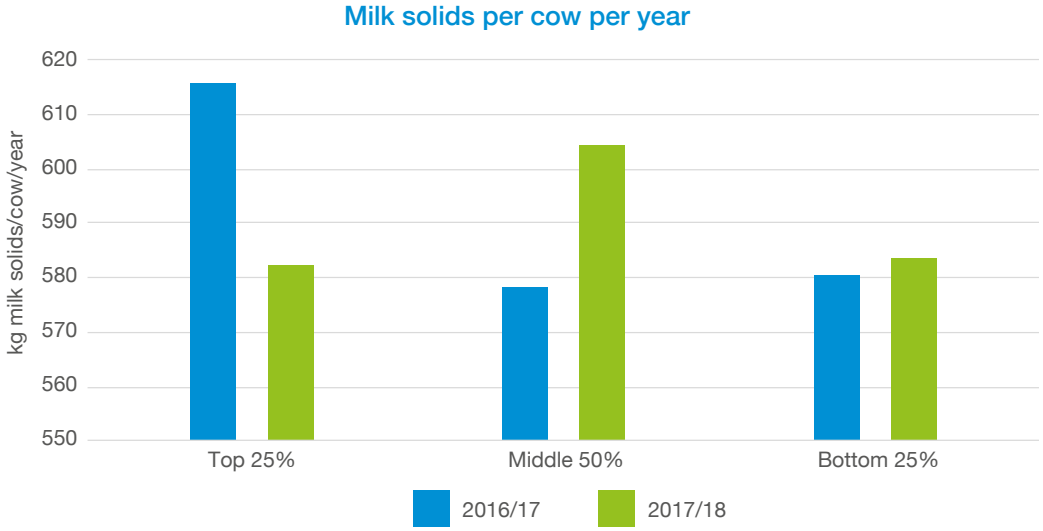



Figure 6. Milk solids production per cow per year for autumn-calving herds in 2017/18 compared to 2016/17

Source: AHDB Dairy, Promar International and partners

This shows the importance of considering the economics of changes in feeding practices before carrying them out. Feed costs for the top 25% held steady despite the adverse conditions and they produced less milk as a result, but still came out with the most profit.

## Weighing up the economics of feeding decisions

- The challenging weather over the last year has emphasised the importance of planning for extremes to help minimise the extra costs that poor weather can bring. ***Expert view – grazing strategies*** is available on our website and includes advice on planning winter feeding
- If you are considering altering your feeding to get extra litres, or higher milk solids, it is essential to know how much you will get paid for this, taking into account any seasonality payments included in your milk contract. If your milk buyer participates in our **Milk price calculator**, this can help you calculate how much extra revenue you might generate for more milk and/or higher solids. It can be used together with our **Milk forecasting calculator**, which allows you to forecast your milk production and sales income
- The more challenging question is how much it will cost to produce those extra litres – this will be individual to your situation because it depends on cow size, yield, solids content, feed energy content and how much the cows will eat. Knowing the energy and nutrient content of your forage is crucial, so each cut taken should be analysed. **Our technical resources** demonstrate how to work out cow energy requirements depending on milk yield and how to formulate feed plans accordingly. However, complex diets or changes in diet are likely to require input from your nutritionist to ensure the balance of nutrients is right for your individual situation – ideally you want to know how many extra litres you can expect to get from the modified diet and at what cost
- KPIs to keep an eye on include:
  - Milk yield from forage
  - Full economic cost of production

# *Spring block calving herds' performance 2017/18*

## Overview

There is a 10.9 ppl difference in full economic net margin between the top and bottom 25% of spring block calving herds, largely because the most profitable farms' costs are 8.4 ppl lower. Breaking this difference in costs down further shows that half of this gap is attributed to just three areas: herd replacement cost, feed and forage costs and unpaid labour.

Herd replacement costs are covered on the next page, to attempt to unpick how the top 25% might do things better. Feed and forage costs are discussed further in Autumn block calving herds' performance 2017/18, but the methods used by these two block calving systems will be very different. Readers looking for spring-calving feed and forage information may find it useful to refer to last year's ***Dairy performance results***, which included a focus on forage for spring block systems. Unpaid labour costs are discussed in **All-year-round calving herds' performance 2017/18**.

## About the figures

Accounts from 35 spring-calving GB dairy herds were analysed to produce the physical, financial and KPI data in this section. Figures are shown for the most and least profitable 25% of farms, as well as those in the middle. The spread of systems present in GB means there are fewer block calving herds in the sample than there are AYR farms. As a result, there may be less variation within the autumn and spring results than within the AYR results.

Aggregating farms into performance brackets to look for trends and insights will inevitably hide a variety of individual structures and performance within each bracket. The top 25% includes farms with just under 300 cows and up to around 500 cows and yields from around 4,500 litres per cow up to 6,000 litres per cow. Full economic net margin also varied in this top set, from around 8 ppl to 15 ppl. If you are using these figures to compare systems to help decision-making, it is worth bearing in mind the difference in herd sizes between the systems: the smallest spring-calving herd in the top 25% has three times as many cows as its counterparts in the AYR and autumn-calving systems.

## Physical and financial performance

As part of AHDB's Optimal Dairy Systems work, we identified several KPIs for block calving systems. These are highlighted with a blue outline in Tables 9 and 10. Financial data on a £ per cow and £ per hectare basis can also be found in **Appendix 7**.

Table 9. Physical performance of spring block calving conventional dairy herds in 2017/18

| | Top 25% | Middle 50% | Bottom 25% |
|---|---|---|---|
| **Herd** | | | |
| Average herd size | 365 | 424 | 230 |
| Dairy stocking density (LU/ha) | 2.5 | 2.4 | 2.0 |
| Labour – paid and unpaid (hours/cow/year) | 23 | 28 | 30 |
| **Milk production** | | | |
| Milk production (l/cow/year) | 5,121 | 5,523 | 5,017 |
| Milk solids production (kg/cow/year) | 450 | 471 | 439 |
| Average butterfat (%) | 4.81 | 4.57 | 4.82 |
| Average protein (%) | 3.72 | 3.71 | 3.68 |
| Milk solids output per hectare (kg milk solids/hectare) | 1,154 | 1,114 | 893 |
| Milk yield from forage (l/cow/year) | 3,427 | 3,108 | 2,929 |
| Milk yield from forage (kg milk solids/cow/year) | 301 | 265 | 256 |
| **Calving** | | | |
| Age at first calving (months) | 24 | 24 | 24 |
| Calving interval (days) | 375 | 377 | 373 |
| **Culling** | | | |
| Herd replacement rate (%) | 24 | 28 | 23 |
| Number of lactations | 5.0 | 4.6 | 5.0 |

Table 10. Financial performance of spring calving conventional dairy herds in 2017/18*

| | ppl | | | £ per kg of milk solids | | |
|---|---|---|---|---|---|---|
| | Top 25% | Middle 50% | Bottom 25% | Top 25% | Middle 50% | Bottom 25% |
| **Output** | | | | | | |
| Milk sales | 31.2 | 30.9 | 29.4 | 3.55 | 3.62 | 3.36 |
| Other income | 2.8 | 2.6 | 2.2 | 0.32 | 0.30 | 0.25 |
| **Total output** | **34.0** | **33.5** | **31.6** | **3.87** | **3.93** | **3.61** |
| **Herd replacement costs** | **3.9** | **5.1** | **5.0** | **0.45** | **0.59** | **0.58** |
| **Variable costs** | | | | | | |
| Purchased concentrates | 2.3 | 3.4 | 3.8 | 0.26 | 0.40 | 0.44 |
| Purchased forage and short-term keep | 0.7 | 0.5 | 0.5 | 0.08 | 0.06 | 0.06 |
| Home-grown concentrate and forage costs | 1.5 | 1.7 | 1.7 | 0.17 | 0.20 | 0.19 |
| **Total feed and forage costs** | **4.5** | **5.7** | **6.0** | **0.52** | **0.66** | **0.69** |
| Veterinary and medicine costs | 0.6 | 0.7 | 0.8 | 0.07 | 0.08 | 0.10 |
| Other livestock costs | 1.9 | 1.9 | 2.3 | 0.21 | 0.22 | 0.26 |
| **Total variable costs** | **7.0** | **8.2** | **9.2** | **0.80** | **0.96** | **1.05** |
| **Overhead costs** | | | | | | |
| Labour (paid) | 3.0 | 3.0 | 3.6 | 0.34 | 0.35 | 0.41 |
| Power and machinery | 3.0 | 3.1 | 3.7 | 0.35 | 0.36 | 0.43 |
| Property repairs | 0.5 | 0.9 | 1.3 | 0.06 | 0.11 | 0.14 |
| Rent | 1.0 | 0.3 | 0.9 | 0.11 | 0.04 | 0.10 |
| Finance | 0.2 | 0.2 | 0.6 | 0.02 | 0.03 | 0.07 |
| Other operational costs | 0.8 | 0.8 | 1.2 | 0.09 | 0.10 | 0.14 |
| **Total cash costs** | **19.5** | **21.6** | **25.4** | **2.22** | **2.54** | **2.91** |
| **Cash net margin** | **14.6** | **11.9** | **6.2** | **1.66** | **1.39** | **0.71** |
| Labour (unpaid) | 1.3 | 2.6 | 3.1 | 0.15 | 0.30 | 0.35 |
| Machinery and equipment depreciation | 0.1 | 0.2 | 1.0 | 0.01 | 0.02 | 0.11 |
| Buildings depreciation | 0.4 | 0.5 | 0.6 | 0.05 | 0.06 | 0.07 |
| Rental value of owned land | 1.7 | 2.0 | 1.4 | 0.19 | 0.24 | 0.16 |
| **Overheads (excluding rent and finance)** | **9.2** | **11.1** | **14.4** | **1.05** | **1.30** | **1.65** |
| **Full economic cost of production** | **23.1** | **26.9** | **31.5** | **2.63** | **3.16** | **3.60** |
| **Full economic net margin** | **11.0** | **6.6** | **0.1** | **1.25** | **0.77** | **0.01** |

*GB figures in this report are for the dairy herd only, excluding youngstock output and costs. The value of incoming heifers is included within the herd replacement cost, but report users must note this does not fully reflect youngstock rearing costs. Totals may not tally exactly, due to rounding.

## Spring block calving topic in focus: Herd replacement cost

Herd replacement cost is a significant proportion of total costs, particularly for spring block systems. The top 25% of farms spent 1.1 ppl less on replacements in 2017/18, compared with the bottom 25% (Figure 7). This was equivalent to around £50 per cow.

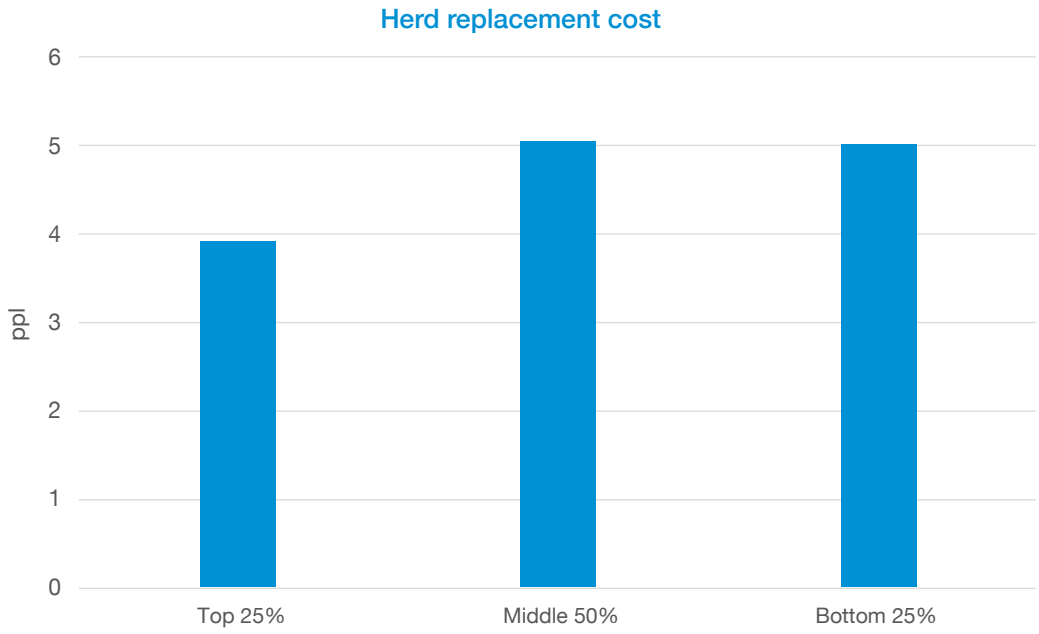



Figure 7. Herd replacement cost for spring block-calving herds in 2017/18

Source: AHDB Dairy, Promar International and partners

Perhaps surprisingly, this higher cost was not associated with a higher replacement rate for the bottom 25%. In fact, replacement rates were roughly equal for the top and bottom groups. However, these averages do not tell the full story because replacement rates varied much more between individual farms in the bottom 25% compared with the top set (Figure 8).

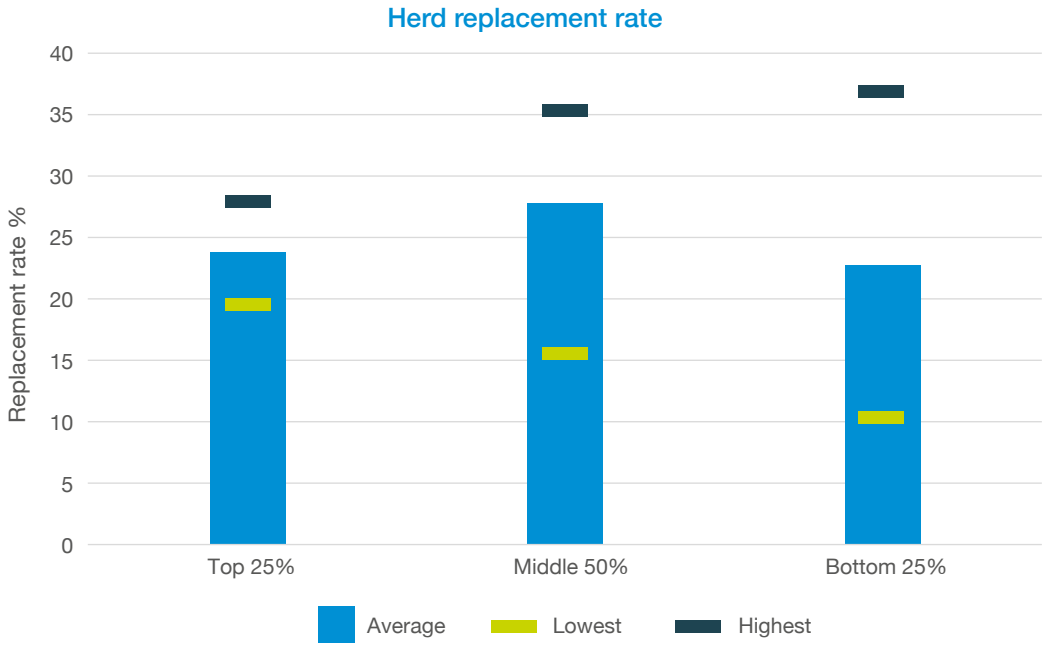



Figure 8. Herd replacement rate for spring block-calving herds in 2017/18 – average, highest and lowest rates within the top 25%, middle 50% and bottom 25% of farms

Source: AHDB Dairy, Promar International and partners

This shows there is more to a successful replacement strategy than simply keeping the number of replacements low – selecting which cows to cull, maximising revenue from these culls and managing the cost of their replacements are all important.

The data available do not provide enough individual farm detail to pinpoint exactly why some farms in the bottom 25% have relatively high replacement costs compared to their replacement rates, but possible reasons include:

- Changes in herd size – some farms may be expanding and others scaling back, causing variation in the herd replacement data
- More cows could be leaving farms in the bottom 25% as fallen stock instead of culls, resulting in lower revenue from cull cows
- A higher proportion of culls in the bottom 25% may be forced culls rather than voluntary ones, resulting in fewer being sold on for milking and lowering the average price received per animal
- Farms may be holding on to cows that should have been culled earlier for management reasons – this would keep the culling rate down but not help with overall herd performance of farms in the bottom 25%
- High costs for replacement heifers may add extra costs, whether home-grown or purchased. However, it must be noted that the GB data in this report do not include youngstock enterprise costs and revenue. Heifers transferred into the dairy herd are valued within the herd replacement cost, but this does not fully reflect true heifer rearing costs for individual farms

## Managing herd replacement costs

- Replacement rate for individual herds depends on several factors, including whether the herd is expanding or pushing to improve cow productivity and on the level of disease present. When reviewing your herd replacement rate, it is useful to consider the reasons for culling cows because this may highlight problem areas to focus on. Monitoring reasons for culling year-on-year also helps to identify trends and measure improvements. An overview of the questions and factors to consider when reviewing your replacement policy is included in this ***Decisions4Dairy*** article on our website
- Maximising the income you receive for cull cows helps to reduce replacement costs. This depends on the condition of the animals leaving the herd and market prices at the time of sale. It requires a balance – not keeping cows too long to avoid sharp drops in value, but not removing animals from the herd earlier than necessary. Reducing the number of cow deaths also helps lift cull revenue. **Cull cow prices and trends** can be monitored on our website
- How best to manage replacement heifer costs will depend on whether you are buying in or home-rearing. **Cow and heifer price trends** can be monitored on our website. For those home-rearing heifers, our **Calf to Calving** work provides guidance on how to manage rearing costs
- KPIs to keep an eye on include:
  - Herd replacement rate
  - Full economic cost of production

# How is British dairying competing globally?

## At a glance…

- Profit was associated with milk production cost, not milk price, for farms in major dairy-exporting nations in 2017
- Lower overhead costs were associated with larger profits
- The UK's typical farm compared relatively well on overhead costs in most areas, but spent considerably more on machinery than its international competitors
- Lower machinery costs were associated with larger profits
- The most profitable farms do not look the same: the key is to operate the system that suits you, your local surroundings and your market – and to do it well

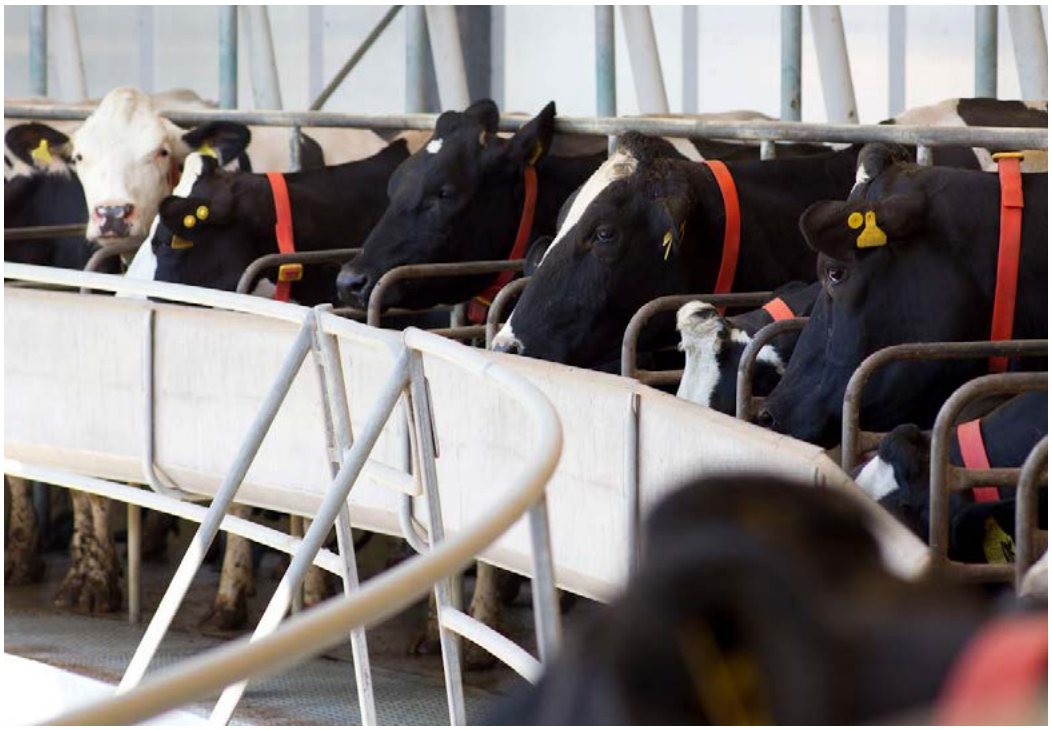
### *Why are international data relevant to GB dairying?*

**British dairy farms are exposed to the global dairy markets through around 2.5 million tonnes of dairy products which are traded over the UK border each year. This puts GB dairy products in direct competition with those from abroad, both on our domestic shop shelves and on export markets. Understanding costs of milk production around the world allows us to gauge how competitive British dairy farms are relative to other nations.**

## About the figures

AHDB has access to costings data for typical farms from around 50 milk-producing countries through the International Farm Comparison Network (IFCN). It must be noted that the methodology behind these international figures is different to that used to obtain GB data: the international data are based on typical farms rather than averages and include the youngstock heifer enterprise.

There are two typical UK farms within the IFCN network: a 160-cow herd in north-west England and a 259-cow herd in south-west England. Here we have concentrated on the 160-cow herd, 'UK-160', because it represents a farm with a herd size similar to the UK average. This section compares typical farms from 15 of the world's major dairy-exporting nations – the types of farms that GB dairy farms will be competing with on the global markets. The selected nations and more detail on the methodology are given in **Appendix 1**.



## Higher profits associated with lower costs

Data from these typical farms in 2017 showed larger profits were strongly associated with lower milk production costs (Figure 9). Milk price was not associated with the farms' level of profit (Figure 10).

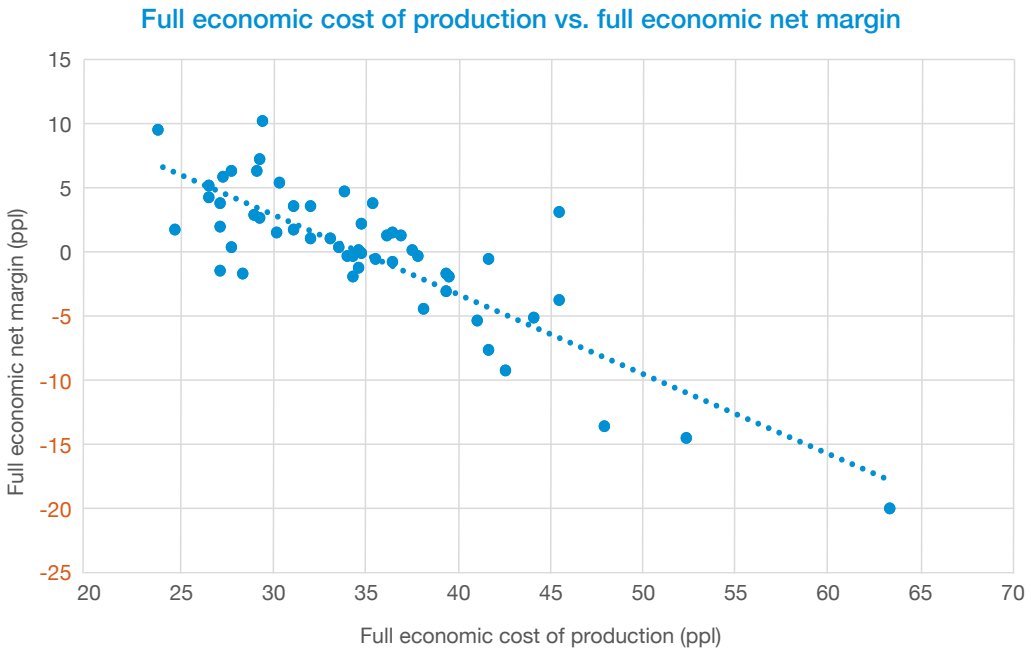



Figure 9. Full economic cost of production versus full economic net margin† for typical farms from selected dairy-exporting nations in 2017

Source: AHDB Dairy and IFCN

†ppl is converted from US dollars per 100 kg of solids-corrected milk (see **Appendix 1** for more detail)

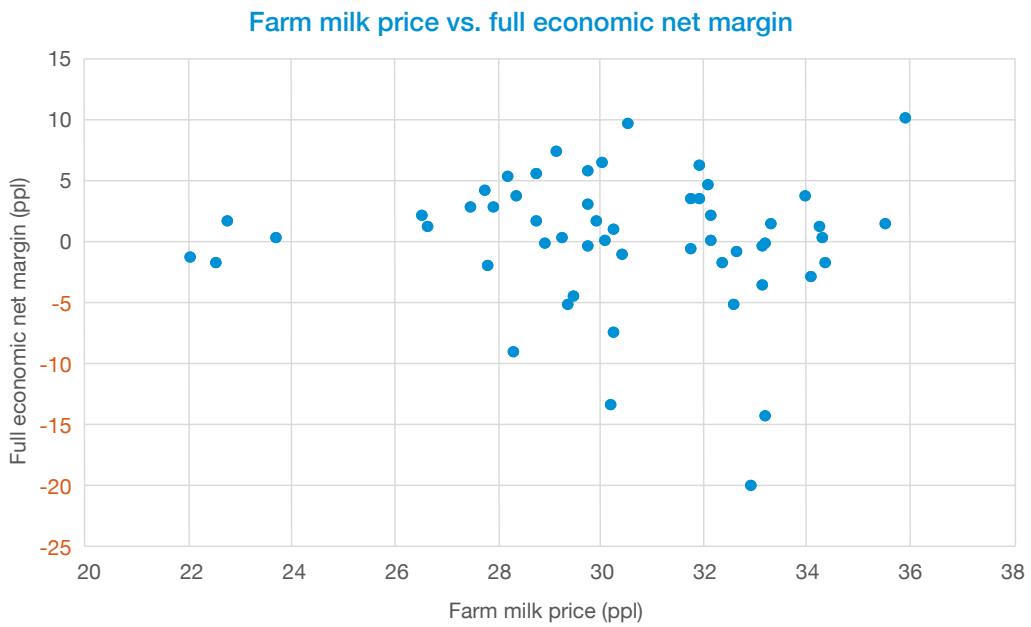



Figure 10. Farm milk price versus full economic net margin† for typical farms from selected dairy-exporting nations in 2017

Source: AHDB Dairy and IFCN

†ppl is converted from US dollars per 100 kg of solids-corrected milk (see **Appendix 1** for more detail)

Breaking production costs down further shows that overhead costs have a much stronger association with profit than variable costs (Figures 11 and 12). This is consistent with findings from our Horizon report on ***Preparing for change***, which shows that minimising overhead costs is one of eight factors distinguishing top performing farms across all sectors – not just dairy.

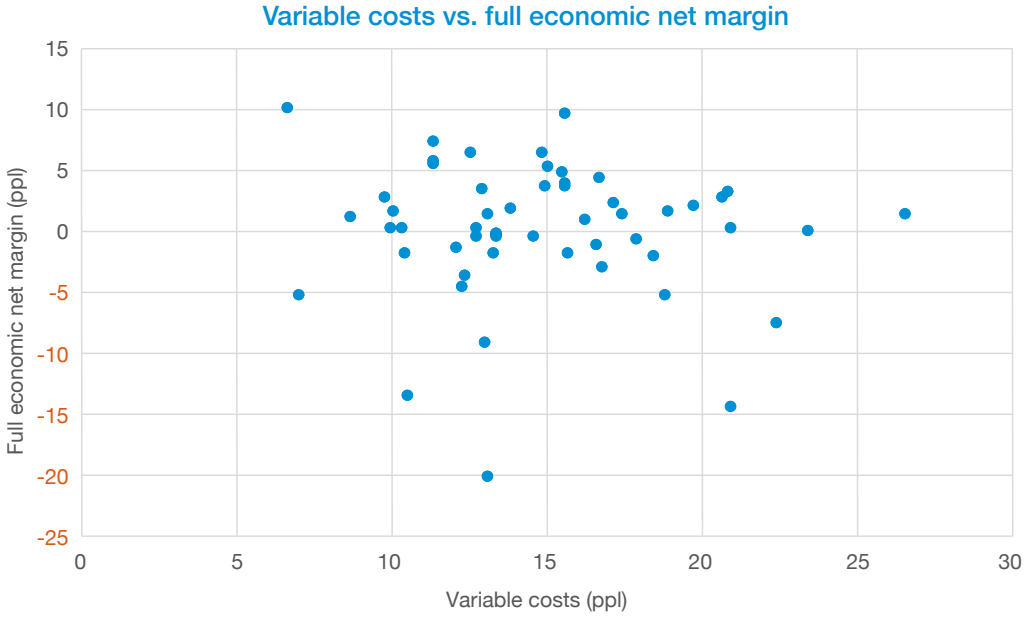



Figure 11. Variable costs versus full economic net margin† for typical farms from selected dairy-exporting nations in 2017

Source: AHDB Dairy and IFCN

†ppl is converted from US dollars per 100 kg of solids-corrected milk (see **Appendix 1** for more detail)

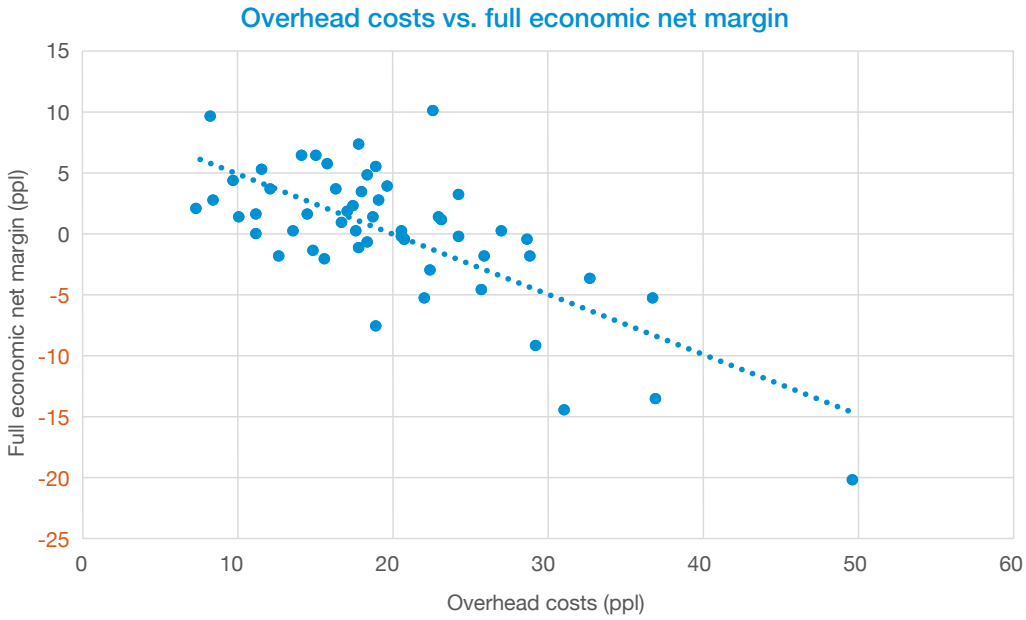



Figure 12. Overhead costs versus full economic net margin† for typical farms from selected dairy-exporting nations in 2017

Source: AHDB Dairy and IFCN

†ppl is converted from US dollars per 100 kg of solids-corrected milk (see **Appendix 1** for more detail)

Looking at overhead costs in more detail allows us to see where the best farms are doing well and where less profitable farms could make improvements. We ranked the typical farms from exporting nations by profit, to examine the top and bottom 10 performers in more detail. UK-160 compares fairly well across most areas, with costs generally not far off those of the top 10 (Figure 13). However, machinery stands out sharply as the single area in which the typical UK farm is spending considerably more than its competitors, with costs more than double those of the top 10 (see Machinery in Figure 13). This represents all machinery and contracting costs, including depreciation.

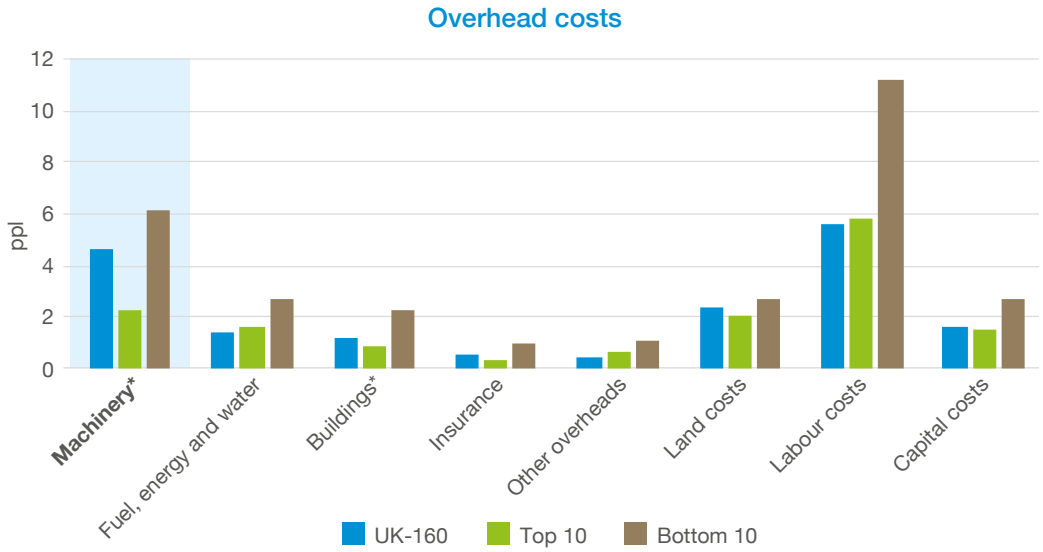



Figure 13. Breakdown of overhead costs† for the 10 most profitable and 10 least profitable typical farms from selected dairy-exporting nations in 2017, compared with the UK's average-sized typical farm

Source: AHDB Dairy and IFCN

*Includes depreciation
†ppl is converted from US dollars per 100 kg of solids-corrected milk (see **Appendix 1** for more detail)

Data from our exporting nations' typical farms also show an association between larger profits and lower machinery costs (Figure 14). This suggests machinery is an area in which some GB farms may have scope to tighten up costs and improve profits.

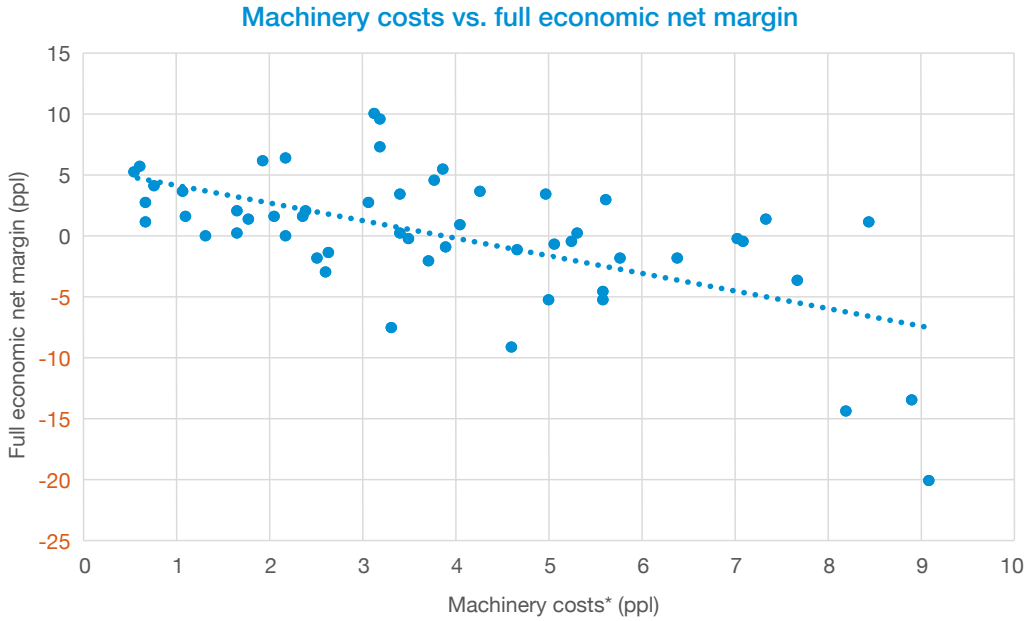



Figure 14. Machinery costs versus full economic net margin† for typical farms from selected dairy-exporting nations in 2017

Source: AHDB Dairy and IFCN

*Includes depreciation
†ppl is converted from US dollars per 100 kg of solids-corrected milk (see **Appendix 1** for more detail)

## Reducing machinery costs

- Suggestions on re-assessing machinery costs are included in the Horizon report ***Preparing for change*** (page 7), as part of a strategy to reduce overheads
- Information on reviewing machinery costs is available in our articles ***Machinery review: what next?*** and ***Use data to make informed farm machinery decisions***. Although these refer to the cereals and oilseeds sector, they provide considerations that may be useful to some dairy farms
- KPIs to keep an eye on include:
  - Overheads (excluding rent and finance) as a proportion of dairy income
  - Return on tenant's-type capital

## A look at the top farms from dairy-exporting countries

Analysis of the top 10 farms in our set of exporting countries revealed the diversity of the top performers. All 10 turned a profit of at least 4 ppl in 2017, but using a variety of different approaches. They included a mixture of grazed and housed systems, seasonal and AYR calving, family and corporate businesses, annual milk yields from 5,800 to 11,400 litres and sizes from 25 to 2,600 cows.

This diversity highlights the importance of making sure your farming system suits your local resources, the markets you sell to and your own mindset, as well as being well operated and with close attention to costs. Examples from two typical farms in our top 10 demonstrate this point well: they have very different systems and therefore different pros and cons, but both made a profit of around 6 ppl in 2017.

### Top 10 typical farm: DE-1200

DE-1200 represents a large commercial dairy farm in eastern Germany, with 1,200 Holstein-Friesian cows, yielding around 10,000 litres per year. Cows are housed in cubicles and feed is all home-grown. The farm also has a crop enterprise.

The dairy enterprise made a full economic net margin of 6.1 ppl[†] in 2017 (including youngstock heifer revenue and costs, but excluding decoupled subsidies). Full economic costs were 29.2 ppl and cash costs (i.e., the 'visible' costs that are paid for by a financial transaction) made up a relatively high proportion of this, at 28.0 ppl. Therefore, at milk prices below 28.0 ppl, this farm is not able to break even on its cash costs to meet its incoming bills. In addition, the farm will have other, less tangible overheads to consider, such as unpaid labour and a depreciation cost for buildings and machinery to allow future investment.

However, the system operated by this farm is less reliant on grazing conditions and grazing season length than other lower-input systems, so may suit the local climate and be less severely affected by weather events. It is also better able to deliver a flat profile of milk, should this be required or financially incentivised by the farm's milk buyer.

### Top 10 typical farm: IE-137

IE-137 represents a large family farm in Ireland, with 137 Holstein-Friesian cows, yielding around 7,400 litres per year. Cows are out grazing for as much of the year as possible and concentrate usage is limited. The farm also has crop and beef fattening enterprises.

The dairy enterprise made a full economic net margin of 5.6 ppl[†] in 2017 (including youngstock heifer revenue and costs, but excluding decoupled subsidies). Full economic costs were 27.4 ppl, but cash costs (i.e., the 'visible' costs that are paid for by a financial transaction) made up just 16.6 ppl of this. During times of low milk prices, this cost structure puts the farm in a relatively strong position compared with many others because it is still able to break even on its cash costs and pay its incoming bills at a milk price of 16.6 ppl. In addition, the farm will have other, less tangible overheads to consider, such as unpaid labour and a depreciation cost for buildings and machinery to allow future investment.

Although relatively low-cost, this system relies on good grazing, as well as a long grazing season, so it can be more severely affected by adverse weather. It also requires a milk buyer that operates in markets that can tolerate a highly seasonal milk profile.

[†] ppl is converted from US dollars per 100 kg of solids-corrected milk (see **Appendix 1** for more detail)

# Appendices

## Appendix 1 – Methodology

### GB data

The data are sourced from around 350 sets of farm accounts, all with year-ends falling between December 2017 and June 2018, collected by Promar International and its contributing partners. The data sample used here is stratified to reflect the variety of producers in the dairy sector. Farm stratification was based on the following criteria:

- Geographical location
- Level of milk production
- Calving pattern
- Housing period
- Type of contract
- Financial and physical performance

**The GB figures in this report are for the dairy herd only, excluding youngstock returns and costs. The value of incoming heifers is included within the herd replacement cost, but report users must note that this does not fully reflect true youngstock rearing costs for individual farms. Subsidies are also excluded.**

In this report, financial data are provided as cash cost of production and also full economic cost of production. Each dairy business will have its own management accounting conventions for evaluating financial performance.

By presenting both cash costs and full economic costs, this report provides the range of costs within which most businesses will fall. Top and bottom 25% performance is ranked on the ratio of outputs to inputs and represents the dairy herd only, excluding the dairy youngstock enterprise.

Cash costs of production are recognisable as the day-to-day costs of running a milking operation. Full economic costs allows farms of different ownership structures and farming systems to be compared.

### International data

As a member of the International Farm Comparison Network (IFCN), AHDB Dairy has access to data updated annually from 53 major milk-producing countries around the world. The data are based on a selection of 'typical farms' that represent the most common systems producing the highest share of milk within a region or country.

**The international data include the dairy herd and dairy youngstock enterprises, so heifer returns and costs are included. Subsidies are excluded.**

The international figures in this report focus on 2017 data from typical farms in 15 major dairy-exporting nations: the UK, Germany, France, Netherlands, Ireland, Denmark, Poland, Spain, Italy, Belgium, Czech Republic, USA, Argentina, Australia and New Zealand. The pence per litre (ppl) figures are converted from US dollars per 100 kg of solids-corrected milk, which have been standardised to 4.0% butterfat and 3.3% protein by IFCN, using the average exchange rate for 2017.

## Appendix 2 – £/kg milk solids

More and more people are measuring and comparing in kilograms of milk solids (MS). The figures in this report have been calculated by:

1. Total litres produced multiplied by 1.0297 (because 1 litre of milk weighs 1.0297 kg).
2. This weight of milk in kg multiplied by the proportion of fat and protein present in the milk.

## Appendix 3 – Depreciation

There are several ways to calculate depreciation and the method chosen depends on the purpose for which the figures will be used. The methodology used in this report is detailed below. This allows users of the report to assess whether it meets their needs and allows them to adjust the figures for their own purposes if required.

Depreciation methods used for the ***Dairy performance results 2017/18***:

- **Machinery** – Purchase price depreciated at a flat rate of 20% per annum over 5 years
- **Plant** – Purchase price depreciated at a flat rate of 4% per annum over 25 years
- **Buildings** – Purchase price depreciated at a flat rate of 2.5% per annum over 40 years

This is a modification from the methodology used in previous years' reports, which used rates of 7% for both machinery and plant (depreciated over 15 years) and 5% for buildings (depreciated over 20 years). If, for annual comparison purpose, you require 2017/18 figures calculated using the previous method, please contact us (please see the back cover for contact details).

## Appendix 4 – Unpaid labour

There are numerous ways to calculate unpaid labour costs, depending on the method used to put a value on labour. The methodology used in this report is detailed below. This allows users of the report to assess whether it meets their needs and allows them to adjust the figures for their own purposes if required.

Valuation of unpaid labour for the ***Dairy performance results 2017/18:***

Unpaid labour hours utilised are converted into costs using full time equivalents (FTE) working 2,860 hours per annum and earning a wage of £30,000 per annum.

This is a modification from the methodology used in previous years' reports, which used an average hourly rate for agricultural workers from the Office for National Statistics. If, for annual comparison purposes, you require 2017/18 figures calculated using the previous method, please contact us (please see the back cover for contact details).

## Appendix 5 – All-year-round calving herds' performance 2017/18 in £/cow and £/hectare

Table 11. Financial performance of AYR calving conventional dairy herds in 2017/18*

| | £ per cow | | | £ per hectare | | |
|---|---|---|---|---|---|---|
| | Top 25% | Middle 50% | Bottom 25% | Top 25% | Middle 50% | Bottom 25% |
| **Output** | | | | | | |
| Milk sales | 2,637 | 2,439 | 2,141 | 5,900 | 4,572 | 3,912 |
| Other income | 151 | 143 | 133 | 338 | 268 | 243 |
| **Total output** | **2,788** | **2,583** | **2,274** | **6,238** | **4,840** | **4,155** |
| **Herd replacement costs** | **224** | **233** | **363** | **502** | **436** | **663** |
| **Variable costs** | | | | | | |
| Purchased concentrates | 641 | 648 | 618 | 1,434 | 1,215 | 1,129 |
| Purchased forage and short-term keep | 86 | 57 | 46 | 191 | 107 | 84 |
| Home-grown concentrate and forage costs | 97 | 105 | 105 | 217 | 196 | 191 |
| **Total feed and forage costs** | **823** | **810** | **769** | **1,842** | **1,518** | **1,405** |
| Veterinary and medicine costs | 81 | 81 | 90 | 182 | 152 | 164 |
| Other livestock costs | 177 | 189 | 172 | 395 | 355 | 314 |
| **Total variable costs** | **1,081** | **1,080** | **1,030** | **2,419** | **2,024** | **1,883** |
| **Overhead costs** | | | | | | |
| Labour (paid) | 209 | 206 | 182 | 468 | 386 | 333 |
| Power and machinery | 255 | 314 | 344 | 570 | 589 | 629 |
| Property repairs | 35 | 44 | 65 | 79 | 83 | 119 |
| Rent | 80 | 75 | 44 | 178 | 140 | 81 |
| Finance | 51 | 68 | 101 | 115 | 128 | 184 |
| Other operational costs | 80 | 93 | 107 | 180 | 174 | 196 |
| **Total cash costs** | **2,016** | **2,112** | **2,237** | **4,511** | **3,959** | **4,088** |
| **Cash net margin** | **772** | **470** | **37** | **1,728** | **882** | **67** |
| Labour (unpaid) | 150 | 214 | 283 | 336 | 400 | 518 |
| Machinery and equipment depreciation | 102 | 118 | 166 | 229 | 221 | 304 |
| Buildings depreciation | 19 | 20 | 25 | 42 | 38 | 46 |
| Rental value of owned land | 32 | 49 | 69 | 73 | 92 | 125 |
| **Overheads (excluding rent and finance)** | **851** | **1,009** | **1,174** | **1,903** | **1,890** | **2,145** |
| **Full economic cost of production** | **2,319** | **2,513** | **2,780** | **5,190** | **4,710** | **5,081** |
| **Full economic net margin** | **468** | **69** | **-507** | **1,048** | **130** | **-926** |

*GB figures in this report are for the dairy herd only, excluding youngstock output and costs. The value of incoming heifers is included within the herd replacement cost, but report users must note that this does not fully reflect youngstock rearing costs. Totals may not tally exactly, due to rounding.

## Appendix 6 – Autumn block calving herds' performance 2017/18 in £/cow and £/hectare

Table 12. Financial performance of autumn block calving conventional dairy herds in 2017/18*

| | £ per cow | | | £ per hectare | | |
|---|---|---|---|---|---|---|
| | Top 25% | Middle 50% | Bottom 25% | Top 25% | Middle 50% | Bottom 25% |
| **Output** | | | | | | |
| Milk sales | 2,131 | 2,360 | 2,201 | 3,874 | 4,358 | 3,893 |
| Other income | 183 | 171 | 222 | 333 | 316 | 393 |
| **Total output** | **2,314** | **2,531** | **2,423** | **4,207** | **4,674** | **4,287** |
| **Herd replacement costs** | **149** | **238** | **232** | **270** | **440** | **411** |
| **Variable costs** | | | | | | |
| Purchased concentrates | 369 | 528 | 446 | 671 | 975 | 789 |
| Purchased forage and short-term keep | 12 | 82 | 99 | 23 | 152 | 176 |
| Home-grown concentrate and forage costs | 83 | 105 | 107 | 151 | 194 | 190 |
| **Total feed and forage costs** | **464** | **715** | **652** | **844** | **1,321** | **1,154** |
| Veterinary and medicine costs | 58 | 78 | 117 | 105 | 144 | 208 |
| Other livestock costs | 126 | 172 | 145 | 229 | 318 | 257 |
| **Total variable costs** | **648** | **965** | **915** | **1,179** | **1,783** | **1,618** |
| **Overhead costs** | | | | | | |
| Labour (paid) | 189 | 216 | 183 | 343 | 399 | 325 |
| Power and machinery | 190 | 263 | 338 | 346 | 485 | 597 |
| Property repairs | 54 | 48 | 63 | 99 | 88 | 111 |
| Rent | 31 | 86 | 106 | 56 | 159 | 188 |
| Finance | 4 | 31 | 36 | 7 | 57 | 63 |
| Other operational costs | 64 | 77 | 93 | 117 | 143 | 165 |
| **Total cash costs** | **1,329** | **1,924** | **1,966** | **2,416** | **3,553** | **3,478** |
| **Cash net margin** | **985** | **607** | **457** | **1,791** | **1,120** | **809** |
| Labour (unpaid) | 131 | 173 | 279 | 238 | 319 | 494 |
| Machinery and equipment depreciation | 20 | 53 | 68 | 36 | 98 | 120 |
| Buildings depreciation | 55 | 34 | 33 | 99 | 63 | 58 |
| Rental value of owned land | 102 | 61 | 70 | 186 | 113 | 124 |
| **Overheads (excluding rent and finance)** | **703** | **864** | **1,057** | **1,277** | **1,595** | **1,869** |
| **Full economic cost of production** | **1,636** | **2,245** | **2,416** | **2,975** | **4,146** | **4,274** |
| **Full economic net margin** | **678** | **286** | **7** | **1,232** | **528** | **13** |

*GB figures in this report are for the dairy herd only, excluding youngstock output and costs. The value of incoming heifers is included within the herd replacement cost, but report users must note that this does not fully reflect youngstock rearing costs. Totals may not tally exactly, due to rounding.

## Appendix 7 – Spring block calving herds' performance 2017/18 in £/cow and £/hectare

Table 13. Financial performance of spring block calving conventional dairy herds in 2017/18*

| | £ per cow | | | £ per hectare | | |
|---|---|---|---|---|---|---|
| | Top 25% | Middle 50% | Bottom 25% | Top 25% | Middle 50% | Bottom 25% |
| **Output** | | | | | | |
| Milk sales | 1,614 | 1,655 | 1,484 | 4,099 | 4,037 | 3,003 |
| Other income | 147 | 139 | 111 | 374 | 340 | 224 |
| **Total output** | **1,761** | **1,794** | **1,595** | **4,473** | **4,377** | **3,227** |
| **Herd replacement costs** | **202** | **272** | **254** | **514** | **662** | **514** |
| **Variable costs** | | | | | | |
| Purchased concentrates | 118 | 184 | 192 | 300 | 450 | 389 |
| Purchased forage and short-term keep | 38 | 28 | 27 | 97 | 68 | 55 |
| Home-grown concentrate and forage costs | 78 | 91 | 85 | 198 | 221 | 173 |
| **Total feed and forage costs** | **235** | **303** | **305** | **596** | **739** | **617** |
| Veterinary and medicine costs | 33 | 35 | 43 | 83 | 86 | 86 |
| Other livestock costs | 96 | 102 | 115 | 243 | 250 | 233 |
| **Total variable costs** | **363** | **441** | **462** | **922** | **1,075** | **936** |
| **Overhead costs** | | | | | | |
| Labour (paid) | 156 | 160 | 181 | 395 | 390 | 367 |
| Power and machinery | 157 | 165 | 187 | 398 | 403 | 379 |
| Property repairs | 28 | 48 | 64 | 72 | 117 | 129 |
| Rent | 52 | 17 | 44 | 132 | 42 | 90 |
| Finance | 11 | 12 | 31 | 27 | 30 | 62 |
| Other operational costs | 39 | 44 | 60 | 99 | 107 | 121 |
| **Total cash costs** | **1,007** | **1,159** | **1,283** | **2,559** | **2,827** | **2,597** |
| **Cash net margin** | **754** | **635** | **311** | **1,914** | **1,550** | **630** |
| Labour (unpaid) | 69 | 138 | 154 | 176 | 336 | 312 |
| Machinery and equipment depreciation | 6 | 9 | 51 | 15 | 21 | 102 |
| Buildings depreciation | 23 | 29 | 31 | 59 | 70 | 63 |
| Rental value of owned land | 88 | 109 | 70 | 224 | 266 | 141 |
| **Overheads (excluding rent and finance)** | **478** | **592** | **728** | **1,214** | **1,444** | **1,474** |
| **Full economic cost of production** | **1,194** | **1,443** | **1,589** | **3,032** | **3,520** | **3,216** |
| **Full economic net margin** | **567** | **351** | **6** | **1,440** | **857** | **11** |

*GB figures in this report are for the dairy herd only, excluding youngstock output and costs. The value of incoming heifers is included within the herd replacement cost, but report users must note that this does not fully reflect youngstock rearing costs. Totals may not tally exactly, due to rounding.

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