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Milk Manager NEWS

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Milk Manager NEWS

Market Update

UK Wholesale Dairy Commodity Market

- Fonterra's latest on-line GDT auction (6th February) resulted in a 5.9% increase in the weighted average price across all products, reaching US $3,553/t (the highest level since September 2017). This is an even greater increase than the previous result on 16th January, which showed a 4.9% rise. The rise was partly due to Fonterra cutting volumes available for sale on the back of unpredictable weather in New Zealand. Further cuts in product volumes for sale will be seen as dry weather impacts on milk volumes in both New Zealand and Australia. All seven products on offer rose in price with the biggest movers being buttermilk powder (+8.4% to $2,039/t) and butter (+7.9% to $5,277/t).

- In the UK, despite all commodities falling throughout January, prices were still supported by domestic demand, butter and cheese export enquiries and very little available spot stocks.

Commodity	Jan 2018 £/T	Dec 2017 £/T	% Difference Monthly	Jan 2017 £/T	% Diff 2017-2018
Bulk Cream	1,550	1,800	-14	1,620	-4
Butter	3,660	4,000	-9	3,600	2
SMP	1,160	1,230	-6	1,850	-37
Mild Cheddar	2,850	3,000	-5	3,080	-7

Source: AHDB Dairy - based on trade agreed from 1st to 26th January 2018. Note these are average prices indicating prices traded across the whole of the past month.

- Currency changes have been the main influencer on skim milk powder (SMP), which reduced throughout January. Sterling strengthened against the Euro, meaning that the price of SMP had to fall to be competitive with EU prices. EU agriculture ministers have announced a stop on the automatic buying in of SMP at a fixed price for 2018, in an effort to help stabilise dairy markets (29th January). However, SMP can still be purchased through a tendering process, with the EU basing buying decisions (quantity and price) on a case by case basis.

- The cream income to a liquid processor is now estimated at 9.01ppl for January and is 0.56ppl less than where it was 12 months ago. This income dropped back 0.47ppl from December on the back of the cream price being £250/t less for January.

- AMPE dropped 9% in January on the back of falling butter and SMP prices.

- MCVE fell by 6% as a result of mild cheddar dropping back on average £150/t from December. Whey butter prices also fell by 9% although whey powder remained relatively stable.

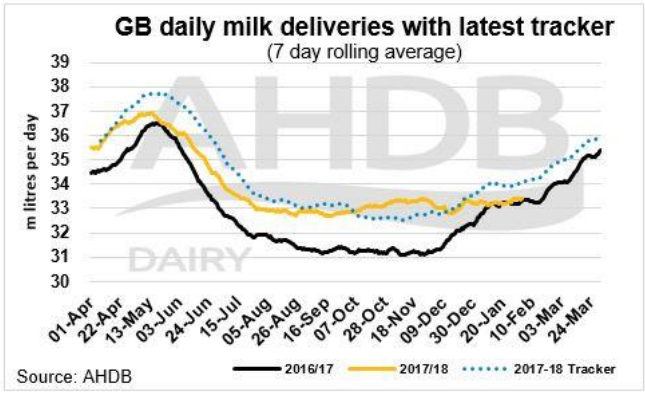
	Jan 2018	Dec 2017	12 months previously	Net Amount less 2ppl Haulage – JAN 18
AMPE	24.0ppl	26.4ppl	30.5ppl	*22.0ppl*
MCVE	30.1ppl	31.9ppl	33.7ppl	*28.1ppl*

Source: AHDB Dairy

- The future trend in butter price is difficult to predict, as spring approaches, but supply and demand are currently finely balanced.

UK Milk Deliveries and Global Production

- For the week ending 3rd February, UK milk deliveries are slightly up on the previous week by 0.2%. Compared to the same week last year, deliveries are up 0.4%, which is roughly an extra 100,000 litres/day. Production has been relatively stable throughout January but typically tends to increase, as seen in the 2016/2017 deliveries and predicted by this year's tracker.



- Milk production from the key 5 exporting regions (EU, US, Australia, New Zealand and Argentina) was up significantly towards the end of 2017. A 3.9% rise in November deliveries, equating to a daily production of 806m litres, was reported compared to November 2016. Deliveries from the EU-28 were 6.1% up on

November 2016 with the biggest contributors to this growth in production being the UK, Germany and France.

Monthly Price Movements for February 2018

The majority of milk buyers have dropped their price for February, with only the Tesco price marginally increasing, based on their cost of production tracker.

Commodity Produced	Company Contract	Price Change	Standard Litre Price Feb 2018
Liquid & Cheese	**Arla Farmers UK**	*-1.66ppl liquid -1.73ppl manufacture*	28.16ppl liquid 29.27ppl manufacture
Liquid & Cheese	**Arla Direct**	*-1ppl liquid -1.05ppl manufacture*	27.0ppl liquid 28.13ppl manufacture
Liquid & Brokered Milk	**First Milk Mainland Scotland**	*-1ppl*	28.09ppl
Cheese	**Fresh Milk Company (Lactalis)**	*No change*	29.0ppl liquid 30.03ppl manufacture
Liquid & Manufacture	**Grahams**	*No change*	29.25ppl
Liquid & Manufacture	**Müller Direct**	*No change*	29.0ppl
Liquid & Manufacture	**Müller (Co-op)**	*-0.52ppl*	28.87ppl
Liquid & Manufacture	**Müller (Tesco)**	*+0.07ppl*	29.52ppl
Liquid, Powder & Brokered	**Yew Tree Dairies**	*-1ppl*	29.0ppl Standard A litre price

- According to the Ian Potter Associates website (as of 2nd February), 11 milk price cuts from milk buyers throughout the UK have been announced from 1st March, ranging from 0.75ppl (from South Caernarfon Creameries Limited) to a whopping 2ppl (from Pattemores, bringing their standard liquid litre price to 27.5ppl).

- Müller have announced a further milk price cut for March of 1ppl, bringing their standard liquid litre price down to 28ppl. The company blame the drop on weaker prices for all dairy commodities and higher levels of off-farm production.

- Organic milk prices are not affected by the continued fall in dairy commodity prices, with Arla maintaining their organic price for February at 40.96ppl (liquid) and 42.59ppl (manufacturing).

- Arla Foods shows its commitment to the UK dairy industry by announcing investments totalling £72million in the UK in 2018. Ten out of their 12 sites will receive investment for upgrading facilities, with the largest investment of £33.6 million at their Aylesbury site. This site will be where lactose-free dairy products are produced using milk from the Midlands and South East of England. Scotland's processing site at Lockerbie will also be upgraded at a cost of £5.5 million.

- Arla has recently purchased Yeo Valley Dairies Limited. This will allow Arla to use the Yeo Valley brand in liquid milk, cheese, butter and spreads (but the Mead family will continue to own the Yeo Valley yoghurt, cream, ice-cream and desserts business). Yeo Valley currently purchases liquid milk from OMSCo and this agreement will continue for at least another three years.

- With spring just round the corner and EU milk production well ahead of last year, there is still scope for commodity prices (particularly butter and SMP), to fall further. The recent farm-gate price cuts have yet to impact on reducing production and unless EU production is reined in before the spring, it is likely that prices will continue to fall.

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Straights Update

Straights prices for delivery in artic loads as of mid February are as follows (varies depending on location):

£/T for 29t loads delivery + £7/t haulage to central belt	Feb18	Mar 18 - Apr 18	May 18 - Oct 18	Nov 18 - Apr 19
Proteins				
Hipro Soya	348	345	May 343 Jun-Oct 336	336
Rapeseed Meal	219	222	May-Jul 222 Aug-Oct 214	-
Wheat Distillers Pellets	POA	POA	214	-
Starch				
Wheat	152	155	May-Jul 157 Aug-Sep 154	Oct-Apr 159
Barley	137	140	May-Jul 142 Aug-Sep 134	Oct-Apr 139
Maize	176	174	179	-
Fibre				
Sugar Beet Pulp	197	197	201	-
Soya Hulls	181	181	172	-

Source: Straights Direct and Cefetra on 14th February. Barley and wheat prices are based on delivery to central belt (for North-East, deduct £5/t for wheat), courtesy of Julian Bell, Senior Rural Business Consultant, SAC Consulting. Prices do not include seller's margin.

Global News

- Oilseed markets are currently mainly affected by weather in Argentina, where condition of the soyabean crop is being negatively affected by extremely high temperatures and insufficient rainfall. Losses have been estimated at 5 to 6mT. However, conditions in Brazil have been ideal and so the size of the Brazilian crop could offset any losses from Argentina. Argentina accounts for 45% of global trade of soyabean meal and nearly 50% of soya oil. Therefore, significant crop losses due to adverse weather will affect global meal and oil prices.

- The Argentine maize crop is also under threat from La Nina, as is the US winter wheat crop. Long-range weather forecasts suggest that the La Nina phenomenon could last well into late spring before it fades.

- Parts of Russia have in the last few days experienced significant snow fall, which is expected to provide a boost to this year's wheat crop, with another big harvest expected. In Moscow up to 22 inches of snow fell and in parts of central Russia, where much of the wheat is grown, 12 inches of snow was recorded. This will provide good protection against the extreme winter temperatures but also boost soil moisture reserves in the spring. It is expected that Russia could produce between 73 and 82mT of wheat this coming harvest.

- The EU wheat market faces an increasing risk of over supply towards the end of the season due to the poor export pace as Russian, Black Sea and Argentine wheat exporters continue to undercut the EU.

- Indonesia is expected to overtake Egypt as the world's biggest wheat importer, with an expected volume of 12.5mT to be imported in the 2017/18 marketing year, a 23% increase from the previous year. This is driven by greater demand for bread, baked goods and noodles, as well as government policies restricting maize imports to protect local maize production. Increasing demand also comes from producing more livestock feed.

- The recent WASDE (World Agricultural Supply and Demand Estimates) report from the USDA on 8th February adjusted its world wheat production for 2017/18 upwards by 1.24mT from last month. This was due to increased production statistics from the Ukraine (+481,000T) and Argentina (+500,000T). However, the projection for global use was up by 3.09mT, lowering the forecast for world ending stocks (but are still ahead of 2016/17 levels).

UK and Scottish News

- Cereal prices have remained flat over the last month with UK values moving largely in line with currency. A potential rise in UK interest rates boosted the pound but was then undone by ongoing uncertainty over Brexit negotiations.

- The AHDB Early Bird survey of the 2018 UK cereal crop area suggests a fall in wheat area and a rise in spring barley. In Scotland a similar pattern is seen, led by a 12% rise in spring

barley plantings. Depending on yields this could lead to a greater supply of feed barley and straw come harvest, and a relatively tight wheat market given the currently strong demand for wheat for distilling. In addition, world and EU barley output is expected to recover come harvest 2018 so expect the current price premium of wheat over barley to increase from the current £15/t, making barley a more attractive feed.

- Prices for granular urea and ammonium nitrate are looking like trending upwards. Lower production of Chinese urea is affecting the global market. In the UK, stocks are falling and it is thought that only a few importers have urea available. Prices so far have been stable, but with tightening of supply, price may start to increase. Availability of ammonium nitrate is tightening, and there is limited availability of sulphur and NPK grades from some suppliers.

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Preparing Heifers for Calving

The need for close attention and careful management of transition cows is well accepted to minimise transition diseases and ensure good milk production in the next lactation. However, heifers calving for the first time are generally not regarded as high-risk, seeing as they rarely suffer from milk fever or other problems at calving compared to mature cows. Nevertheless, the needs of first-time calvers should be considered to maximise their productivity and longevity in the herd.

Reducing stress on heifers should be at the forefront of housing and management decisions. Research shows that heifers often tend to have a higher incidence of mastitis in the fresh period compared to older cows, due to their reduced ability to cope with stress pre-calving. Under stressful conditions, heifers will stand for longer periods, eat quickly and often too little and their resistance decreases.

The following measures have been shown to reduce stress on heifers:

- Train heifers to use cubicles during the rearing period or at least several weeks before calving. Introduction to cubicles post-calving without training can lead to longer standing times and potentially sole ulcers and white line issues.
- Ideally, house heifers separately from cows in the run up to calving. They eat smaller meals compared to mature cows (see table below) and a separate heifer group will reduce social competition at the feed trough, allowing timid heifers to maximise feed intake.
- If separate heifer and cow groups are not possible, ensure that stocking rates are no more than 90%, based on feed trough space, and that heifers are introduced to the close-up calving pen 4 to 6 weeks before calving. Minimum trough space 30 inches/head.
- Run heifers through the milking parlour before calving to get them used to the parlour and reduce the stress of new surroundings post-calving.
- Where possible, have a separate heifer group post-calving for at least 4 months so that there is less competition for feed space. This will allow heifers to perform better with higher peak yields and get back in calf before having to compete with older, bigger cows.
- If a separate heifer group is not practical, keep heifers in a recently calved group for at least 5 days before joining the main herd.
- Cows have lower activity levels late afternoon and evening, and this is the ideal time to introduce heifers, when social activity is lower and there is less risk of bullying.

Difference in feeding behaviour between cows and heifers

Factor	Cows	Heifers
Feed intake (lbs DM/day)	31.3	26.2
Feeding time (min/day)	163	193
Feeding rate (lbs/min)	0.21	0.13
Meals/day	11.2	11.1
Meal duration (min)	14.6	17.3
Feed intake/meal (lbs)	3.8	3.0

Source: http://agrinutrition.com/feeding-behavior-of-cows-during-gestation-indicator-of-milk-production/

In terms of nutrition, a pre-calving ration with a minimum 14% crude protein (as recommended for close up dry cows) is important to meet the higher

protein requirements of growing heifers. It will also benefit first lactation milk production. One trial showed that heifers fed a 14.7% crude protein diet compared to those on a 12.7% crude protein diet, produced on average an extra 2kg of milk per day during the first four months of lactation (https://www.progressivedairy.com/topics/herd-health/take-a-look-at-the-needs-of-your-transition-heifers).

Note that heifers do not need anionic salts in the diet pre-calving to reduce the risk of milk fever. These can reduce feed intake, affecting growth rates. If housing dry cows and heifers together and a DCAB system is being used, be careful to ensure the DCAB is reduced to a level that will prevent milk fever in cows, but does not discourage heifers from eating.

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Approaches to Re-seeding Grassland

The three main factors in grassland productivity are:

- The total amount of useful feed material that can be produced per hectare.
- The quality of the feed material produced.
- The pattern of growth during the season.

The on-going breeding of new varieties of grasses and clover is being carried out to address these three factors, and the potential exists to take advantage of their attributes through re-seeding.

Whether or not to Re-seed

There are a number of approaches that can be taken to make a decision on re-seeding, both for grazing and for conservation:

1. Visual observation - if the sward has a high weed content along with a low clover content, it is likely that the sward needs re-invigorating. By killing off the old sward prior to re-seeding, the poorer grasses and persistent weeds can be eradicated in one operation. Moreover, the opportunity arises to address any soil fertility or pH issues during cultivation.

2. Grass productivity measurement - in most managed grassland the sward will be predominantly perennial ryegrass, with some clover. A more technical approach is needed to assess productivity level and pattern of growth, both for grazing and conservation. The vigour of the sward can be assessed by regular sward height measurement. Moreover, regular monitoring provides information on the pattern of growth, and it will show up any paucity of growth at either end of the season. As a general rule, during the period from March to November, growth ranges from around 10 to 45 kg DM/ha per day with the maximum daily values normally achieved in May. An indication as to whether these values are being achieved can be estimated by sward height measurement. A daily growth value of 45 kg DM/ha would equate to a daily increase in sward height of 2mm. Therefore, over a four week period, there would be a sward height increase of 56mm. If growth in May is significantly below this value then there may well be a case for over-seeding with grasses that will be more productive. This is likely to be particularly true for spring growth, where over-seeding with early perennial ryegrasses and Italian ryegrass, will assist in early season growth.

3. Monitoring farm outputs - a more advanced approach to a decision on re-seeding is to monitor quality and quantity of the final output. If everything seems okay in terms of visual observation of grass and measurement of grass productivity, as above, and yet milk output is lower than expected, then it may be worth testing the quality of the herbage produced. If silage and/or herbage Metabolisable Energy (ME) values are shown to be low, then productivity will be compromised.

Many of the modern perennial ryegrasses have ME values of around 12. If an analysis of the existing grass sward is giving ME values of 9, or less, then energy productivity per hectare could be substantially increased by re-seeding. As an example:

- A target annual herbage production of 8 tonnes DM/ha with grass of an ME value of 12 would be equivalent, in energy terms, to an output of 10.7 tonnes DM/ha from grass at an ME value of 9.
- To achieve the extra 2.7 tonnes DM/ha from the lower quality grass would require an extra input of around 150 kg/ha of N, along with P and K, at a cost of approximately £150/ha/annum.

- For comparison, a one-off full re-seed to establish better quality grass (and clover) is likely to be in the range of £350 to £400 per hectare (without lime application).

In this example, it would certainly be worth considering a re-seed with better feed quality grasses, as the investment would pay back after three to four years. The 'break even' date will be sooner if more clover can be introduced to the sward, as this would reduce the nitrogen fertiliser requirement.

Over-seeding is not likely to be as effective as a full re-seed, but the cost is lower and there is no loss of production while grass is establishing during a complete re-seed. The cost for over-seeding is £180 to £200 per hectare.

Many considerations come into play when considering a re-seed and hopefully the approach above will be one of them.

New grass varieties under test at SRUC, Aberdeen

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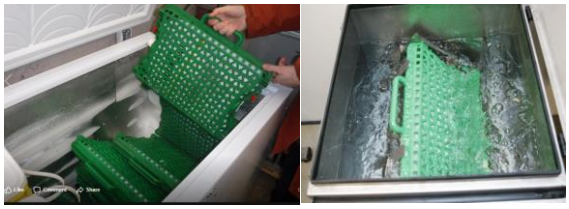
Calf Rearing the Crichton Way

Crichton Royal Farm recently received the accolade of Youngstock Producer of the Year (National Runner Up and Regional Winner) in the Farming in Excellence Awards, sponsored by ForFarmers. This success is based on attention to detail in calf management, improvements in colostrum management and regular weighing of heifers to keep track of growth rates, ensuring targets are being met throughout the rearing period.

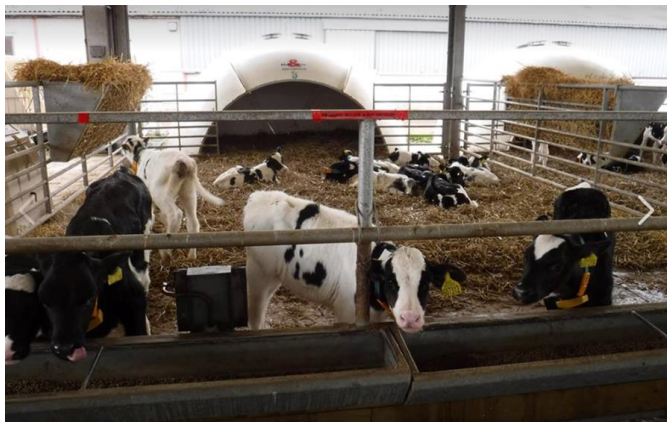
Colostrum management has been a key focus at the farm. Every calf receives 4 litres of colostrum from the ColoQuick system (illustrated in the pictures below), which involves testing for quality using a Brix refractometer (to ensure antibody content is above the minimum target of 50g/L). Once quality is assured, the colostrum is pasteurised and then frozen in 4 litre bags, stored in special cartridges until required. The colostrum is carefully defrosted in a water bath at 40°C for 15 minutes to ensure the antibodies are not damaged. The aim is to get 4 litres of colostrum into the calf within 2 to 3 hours after birth, depending on the time of calving.

The ColoQuick system of colostrum freezing and defrosting



The 2nd feed the calf receives is calf milk replacer (24% protein, 20% oil) and calves are built up to 2 x 3 litres feeds within the first week, where they are housed in individual hutches. At day 7 they are moved into large igloos where they are group housed (maximum 14 calves) and fed on an automatic feeder until 8 weeks. They are fed a maximum of 7 litres of milk at 15% concentration and are gradually weaned off milk with a step-down regime, 1 week prior to weaning. Clean water and starter pellets are offered from day 1.

Group housing of calves in large igloos



Calves receive Rispoval Intranasal at day 7 to aid pneumonia prevention and Halocur for the first 5

days to help prevent cryptosporidium infection. In order to ensure colostrum quality is optimal, dry cows are vaccinated with Rotavec®Corona at drying off to ensure antibodies for rotavirus, coronavirus and *E. coli* F5 (K99) are present in colostrum. The incidence of pneumonia and scours has reduced significantly with better colostrum management and pasteurisation, with calf mortality pre-weaning running at less than 2%.

Farm Manager, Hugh McClymont, also credits early calf health and performance to ensuring good dry cow management and minimising transition diseases, with the incidence of milk fever and retained cleansings very low at <2%. Improvements to calving performance have been made by keeping dry cows inside through the summer and feeding a high straw ration, allowing better control of body condition and avoiding overfat cows at calving.

Calves remain on the starter pellet until 100 days, after which they are switched onto a rearing nut fed up to 4kg/day along with *ad lib* barley straw until 11 months of age. From then they move onto a home-grown TMR of big bale silage, crimped wheat, beans and minerals. Emphasis is placed on maintaining calves in the same group right throughout the rearing phase, which reduces social stress.

Heifers are weighed at birth and weaning and then on a monthly basis until calving. Calves average a weaning weight of 1.9x birthweight at 56 days which is just about on track for the industry target to double birthweight at weaning. Strict breeding criteria mean that heifers must reach a minimum weight of 350kg and wither height of 125cm, as well as being a minimum 13 months of age. These targets are easily being achieved, which shows in the average age at first calving of 720 days, 10 days off the industry target of 24 months. The average lifetime daily liveweight gain until calving is consistently 0.8kg.

Hugh says “monitoring growth performance through regular weighing allows you to identify and address weaknesses in the system where heifers are not performing. If you can’t measure it, you can’t manage it!”

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Genomic Improvement in Dairy Cows - Feed Intake

Genomics provides opportunities to select for traits that have been difficult to do so in the past because the recording is too expensive on a widespread scale. Feed intake is one such trait, but genomics allows us to concentrate efforts into recording a few animals and then use genomic breeding values to disseminate the value of that recording to large numbers of farmers.

In a previous article we said, ‘The power of genomics is established’. We also said we would explore how genomics can be used to improve dairy cows for feed efficiency. This article does that, but also poses questions to consider – if you could select for feed intake in cows would you select those that eat more or those that eat less?

Recording feed intake

Feed intake is measured using specialised and expensive equipment. There are a number of manufacturers of such equipment and they follow broadly the same strategy with their equipment. A bin is mounted on weigh cells and filled with a TMR (see following picture). The weigh cells constantly monitor and record the current weight. An animal with an electronic ID eartag puts its head through the gate and the sensors now know animal A is eating and the bin weighs Y kg. When the animal removes its head the bin now weighs Z kg and so the computer can work out that animal A has eaten Y-Z kg of feed. It’s very simple in practice but the farm is a hostile environment for sensitive equipment and so much effort is expended to make sure the equipment can withstand the treatment a hungry 750kg cow can dish out. Also, birds, mice and rats like such places and the wires contained within, so it has to be rodent proof as well.

As well as recording individual cow feed intake continuously, the data can tell us *when* the cow ate her food and in how many visits. These visits can give insights into cow health and fertility because whilst there is variation between cows in the way they consume their food, each cow has a predictable way of eating and changes in feeding behaviour indicate unease.

Specialised equipment for measuring individual cow feed intake

Genomic breeding values for feed intake

Because recording feed intake in dairy cows is really expensive (around £1000 per lactation) insufficient records can justifiably be collected to produce accurate EBVs for all bulls of interest to dairy farmers. This is where the power of genomics can be applied. As in previous articles, having a reference population of cows with both phenotypes *and* genotypes allows us to produce a prediction equation. This can then be applied to another animal that has a genotype only to give a prediction of feed intake. The accuracy of the prediction is down to two things – the heritability of the trait and the number of animals in the reference population. In the case of feed intake the trait has a moderate heritability of around 0.3.

To overcome the limited number of records available, a number of international research centres collaborated to produce an international SNP key for feed intake which could then be used in each country. This led to around 6000 cow genotypes and 10,000 feed intake records. At present, both Holland and Australia have gEBVs for some measure of feed efficiency based on this collaborative project.

In the UK, AHDB Dairy expects to publish gPTAs for dairy cow feed intake early in 2018 after calculation and validation by EGENES. So going back to the original question – what would you select for? The answer is that like almost all traits you should not select for feed intake alone. Rather you should select on the overall index PLI and then select within your chosen cohort of bulls, those whose daughters eat the least amount of food to produce the maximum amount of product and in so doing, remain healthy and fertile. Put simply reduced food intake is not the goal. As always, profit is the goal!

Summary

Feed intake is a very good example of how genomics can be put to excellent use enabling farmers to select for traits that would be near on impossible any other way. It also shows how phenotype recording for national genetic evaluations may adapt in the future to best exploit genomic selection. It is possible that specialist farms will record a wide range of traits on the same genotyped cows and act as 'phenotype farms' producing not only agricultural products but data as well. These farms and their data could well be the future of genomic selection.

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Strategies for Improving Milk Protein

Many milk buyers pricing schedules are rewarding more for higher constituents and so it makes financial sense to try and match your milk quality to what your buyer wants. Milk protein is more difficult to influence than butterfat but there are several nutritional and management factors that can help improve milk protein percentage and kgs produced as discussed below.

Nutrition

- Increase the energy content of the diet. This can be done a number of ways: feeding more cereals, better quality forages and improving dry matter intakes.
- Feed more starch in the form of cereals, as this drives milk protein content (as long as not already at the maximum starch/concentrate level to maintain rumen health and avoid acidosis).
- More cereal could mean feeding extra home-grown barley or buying in maize which is higher energy, contains more bypass starch (and so safer) and is also proven to increase milk protein percentage.
- Use of molasses to improve ration palatability (especially if silage is wet and low in sugars) and help increase intakes. Molasses provides necessary sugars to feed rumen bugs to

improve microbial protein supply to the small intestine and more protein going to milk.
- Review the type of parlour cake being fed. There may be potential to feed a higher cereal cake (depending on starch level of base ration) as opposed to a high fibre cake.
- Feed more bypass protein (e.g. soya or protected soya or rapemeal products) which have been shown to increase milk protein production.
- Feed mixed forages such as wholecrop cereal or maize silage along with grass silage. Studies show better overall dry matter intakes with mixed forages, as opposed to feeding just one forage, therefore increasing energy intake.
- Feed additives containing protected methionine and lysine have been proven to increase milk protein in the region of around 0.1% depending on the level of supplementation.
- Avoid high fat diets (including protected fats). Milk protein content may be decreased by 0.1 to 0.3% in high-fat diets (>5%).
- Generally dietary crude protein does not affect milk protein %, unless the diet is deficient in protein.
- Dry cow nutrition - bypass protein may help improve milk protein in early lactation (the key is to make sure transition cows are not underfed protein). Target a minimum 14% crude protein content in the dry matter during the last 3 weeks before calving.
- Note that the cost of dietary changes must be evaluated to ensure that better milk quality provides a return on investment.

Management

- Maximise dry matter intake. This can be challenging if silages are very wet and acidic with poor palatability. Also ensure adequate feed space (30 to 35 inches/cow).
- If dry matter intakes are not as expected, is feed/lying space an issue with overstocking? If so look at drying some cows off early (especially if in very good condition) to make space for milking cows. Alternatively, look at your culling policy and cull out poor performing animals. For example, (consider culling animals taking mastitis 3x in lactation in the same quarter, or not in calf and high days in milk).
- If facilities allow, create a high and low milking group, where the highs can be better targeted with more concentrate and starch to drive milk protein.
- Pay close attention to condition score of dry cows (target 2.5 to 3 at calving). Thin cows will produce lower quality milk and fat cows will lose body weight quickly in early lactation, experiencing greater negative energy balance and lower milk protein.

Longer-term strategies must focus on selective breeding and either a change in breed or cross-breeding. Protein and fat percentage in milk is highly heritable (around 50 to 60%) and so breeding, whilst a long-term strategy, can make significant improvements in milk quality without compromising on yield. Also look at the profile of milk protein production throughout the year. Is there a seasonal trend based on whether the herd is housed during the summer or at grass? Perhaps the calving pattern could be reviewed. Year-round calving will even out stage of lactation effects but nutrition must be well balanced with block calving herds to minimise fluctuations in milk quality throughout the year.

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Dates for your Diary

- 15th February - **Is Autumn Block Calving for Me?** Hendrie Brothers (Millands) Ltd, Purroch Farm, Mauchline Road, Hurlford, Kilmarnock, Ayrshire, KA1 5JJ. Time 11.00 – 13.00. To book your place contact **KE Events hub on 01904 771216 or email** ke.events@ahdb.org.uk

- 18th - 20th February - **Stirling Bull Sales**. Stirling Agriculture Centre, A84, Stirling FK9 4RN.

- 21st February - **Brexit Roadshow**. Thainstone House Hotel, Inverurie, AB51 5NT. Time 19.00. To book your place contact Sarah Hunter-Argyle on 07391 408 808 or email sarah.hunterargyle@ahdb.org.uk

- 22nd February - **Brexit Roadshow**. Airth Castle, Airth, Stirlingshire, FK2 8JF. Time 19.00. To book your place contact Sarah Hunter-Argyle on 07391 408 808 or email sarah.hunterargyle@ahdb.org.uk

- 27th February - **Digging Deeper - Part 1**. Woodland Bay Hotel, Girvan, Ayrshire, KA26 0HP. Time 10.30-16.00. For more information

or to book a place call KE Events hub on 01904 771216 or email ke.events@ahdb.org.uk

- 28th February - **Digging Deeper - Part 1**. Carlisle Golf Club, Carlisle, CA4 8AG. Time 10.30-16.00. For more information or to book a place call KE Events hub on 01904 771216 or email ke.events@ahdb.org.uk

- 28th February - **RNAS Spring Show**. Thainstone Agricultural Centre, Inverurie, Aberdeenshire, AB51 5WU.

- 28th February - **Engaging with the Dairy Consumer Workshop #ShoutAboutDairy**. Heltand Hall Hotel, Carrutherstown, Dumfries, DG1 4JX. Time 10:30 - 14:30. To book a place contact Becki Leach t: 07595 415756 ke.events@ahdb.org.uk

- 6th March - **Soil, Muck and Money: Targeting Resources for Maximum Return**. Thainstone Agricultural Centre, Inverurie, AB51 5WU. Time: 10.00-15.00. To book your place contact jdingwall@soilassociation.org

- 7th March - **Soil, Muck and Money: Targeting Resources for Maximum Return**. Standing Stones Hotel, Stenness, Orkney, KW16 3JX. Time: 10.00-15.00. To book your place contact jdingwall@soilassociation.org

- 8th March - **Brexit Roadshow**. Woodland Bay Hotel, Woodland Farm, Girvan, KA26 0HP. Time 19.00. To book your place contact Sarah Hunter-Argyle on 07391 408 808 or email sarah.hunterargyle@ahdb.org.uk

- 8th March - **Grow More, Graze More, Earn More - Ayrshire**. Woodland Bay Hotel, Girvan, Ayrshire, KA26 0HP. Time 10.45-14.30. To book a place contact the KE Events hub on 01904 771216 or email ke.events@ahdb.org.uk

- 9th March - **Grow More, Graze More, Earn More - Kinross**. Windlestrae Hotel, The Muirs, Kinross KY13 8AS. Time 10.45-14.30. To book a place contact the KE Events hub on 01904 771216 or email ke.events@ahdb.org.uk

- 10th March - **UK Dairy Expo 2018**, Borderway Mart, Montgomery Way, Rosehill Industrial Estate, Carlisle, CA1 2RS.

- 12th March - **Digging Deeper - Part 2.** Woodland Bay Hotel, Girvan, Ayrshire, KA26 0HP. Time 10.30-16.00. For more information or to book a place call KE Events hub on 01904 771216 or email ke.events@ahdb.org.uk

- 13th March - **Digging Deeper - Part 2**. Carlisle Golf Club, Carlisle, CA4 8AG. Time 10.30-16.00. For more information or to book a place call KE Events hub on 01904 771216 or email ke.events@ahdb.org.uk

For any further enquiries regarding the information in this newsletter please contact

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