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Milk Manager NEWS

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Market Update

UK Wholesale Dairy Commodity Market

- Fonterra's latest on-line GDT auction (2nd November) resulted in a 4.3% increase in the weighted average price across all products, reaching US $4,207/t. This follows a 2.2% increase two weeks ago. All products on offer sold at higher prices compared to the previous auction (with the exception of buttermilk powder which fell 3.8% to $3,513/t). The biggest movers were cheddar (+14.1% to $5,058/t), skim milk powder (SMP +6.6% to $3,627/t) and butter (+4.7% to $5,350/t). Full results are available at https://www.globaldairytrade.info/en/product-results/

- All UK wholesale prices for dairy commodities have risen from September into October, due to a combination of concerns around milk volumes (both domestically and on the continent) and stocks of products, with limited availability and transport issues. Cream was being quoted at just over £2,000/t towards the end of the month due to less availability, suppressed milk production and increasing demand.

Commodity	Oct 2021 £/T	Sep 2021 £/T	% Difference Monthly	Oct 2020 £/T	% Diff 2021-2020
Bulk Cream	£1,855	£1,656	+12	£1,540	+20
Butter	£3,780	£3,440	+10	£3,140	+20
SMP	£2,330	£2,230	+4	£1,980	+18
Mild Cheddar	£3,240	£3,070	+6	£2,920	+11

Source: AHDB Dairy - based on trade agreed from 27th Sept - 22nd Oct 2021. Note prices for butter, SMP and mild cheddar are indicative of values achieved over the reporting period for spot trade (excludes contracted prices and forward sales). Bulk cream price is a weighted average price based on agreed spot trade and volumes traded.

- The rising cream price has also impacted on butter prices, which varied as much as £845/t over the last month. Higher prices are being paid due to strong demand, concerns over further price rises and the thought that winter milk production levels will not significantly pick up on the back of rising farm costs.

- Mild cheddar prices are up significantly on last year (+11%) due to rising curd prices from milk and milk fats being in short supply. There is still strong demand for cheddar in the retail sector and tight supplies both here and on the continent are helping stimulate buying activity, especially since it is thought that milk deliveries are not likely to pick up in the short-term.

- The market indicators AMPE and MCVE are neck and neck this month, with AMPE having risen 2.72ppl from September as a result of increases in all three components that make up the AMPE price (butter, butter milk powder and SMP). MCVE has risen 2.13ppl with the biggest rise in the mild cheddar component. The Milk Market Value (MMV) is currently the same as MCVE at 36.56ppl for October. MMV indicates the average market value of a litre of milk based on the UK's typical utilisation of milk. Any changes to MMV are usually reflected in changes to farmgate milk prices in around three months' time.

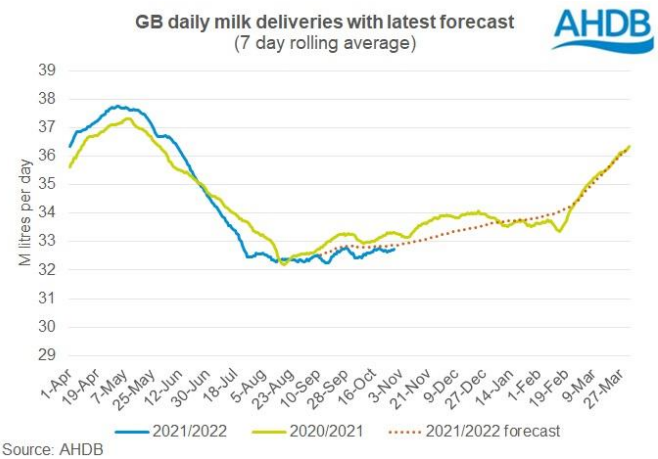
	Oct 2021	Sep 2021	12 months previously	Net amount less 2.4ppl average haulage – Oct 2021
AMPE	36.57ppl	33.85ppl	29.75ppl	*34.17ppl*
MCVE	36.56ppl	34.43ppl	31.64ppl	*34.16ppl*

Source: AHDB Dairy

- For the week ending 5th November spot milk was still trading at 42 to 44ppl delivered, with cream selling at £2.15 to £2.20/kg ex works, up 10p from the previous week. Compared to this time last year, spot milk is +10ppl and cream +£0.50/kg. Further increases are likely given that milk supplies are continuing to tighten.

UK Milk Deliveries and Global Production

- GB milk deliveries have been fairly static throughout the month of October with very little week-on-week change.



Source: AHDB

- For the week ending 5th November, deliveries were just 0.2% up on the previous week and 1.7% less than the same week in 2020 (equivalent to 560,000 litres).

- Global milk production from the six key producing regions is more in line with 2020 production for July and August, with August production only 0.7% ahead of the same month last year. Daily milk deliveries are estimated at 786mlitres, which is 5.6mlitres/day more than in August 2020. The increase in volume is mainly due to growth in the US and EU.

Monthly Price Movements for November 2021

Commodity Produced	Company Contract	Price Change from Oct 2021	Standard Litre Price Nov 2021
Liquid & Cheese	**Arla Farmers UK**	+0.87ppl liquid +0.9ppl manufacture	32.26ppl liquid 33.52ppl manufacture
Cheese, Liquid & Brokered Milk	**First Milk**	*No change*	31.0ppl manufacture
Cheese	**Fresh Milk Company (Lactalis)**	*No change*	29.75ppl liquid 30.98ppl manufacture
Liquid & Manufacture	**Grahams**	*No change*	29.0ppl
Liquid & Manufacture	**Müller Direct**	*+1ppl*	29.75ppl (includes 1ppl direct premium and -0.25ppl Scottish haulage charge)
Liquid & Manufacture	**Müller (Co-op)**	*+0.63ppl*	32.08ppl
Liquid & Manufacture	**Müller (Tesco)**	*+0.7ppl*	33.36ppl
Liquid, Powder & Brokered	**Yew Tree Dairies**	*No change*	30.5ppl Standard A litre price

Other News

- Members of the Tesco Sustainable Dairy Group (TSDG) will benefit from a 0.7ppl price rise from 1st November, bringing their liquid standard litre up to 33.36ppl (for a Müller producer). This is the 4th price rise this year totalling 2.49ppl. Promar calculate their cost of production to be 32.81ppl based on the following:
  - Variable costs = 18.49ppl.
  - Overhead costs = 12.19ppl (including £63,158 for unpaid familiar labour).
  - Depreciation at 2.13ppl.

  Taking into account the quarterly adjustment for feed, fuel and fertiliser adds 0.55ppl onto the cost of production to bring about the new quarterly price of 33.36ppl.

- Defra's estimated UK average farm-gate milk price for August was 31.24ppl, which is 0.76ppl more than in July and 11.4% higher than August 2020. Note this price is not an average standard litre price but the average price paid into farmers' bank accounts.

- According to AHDB Dairy's recent estimate of producer numbers, as of October 2021 only 8000 levy paying GB dairy farmers remain. This figure is 310 less (3.7%) than 12 months ago and it is estimated that there could be significantly more farmers leaving the industry between now and next spring due to escalating costs.

- Kite Consulting's recent report on inflation costs across the dairy supply chain has suggested that these costs should be passed onto consumers as opposed to farmers and processors to avoid more dairy products being exported, or worse, more farmers quitting dairy production. See full report at: https://www.kiteconsulting.com/wp-content/uploads/2021/11/Kite-Project-Reset-report-FINAL.pdf
  Kite calculated the breakeven cost of production to be between 33 to 34ppl and in order to achieve that milk price, butter would have to rise from its current average price by around £800/t to over £4,000/t and bulk cheddar would have to move up by around £500/t to more than £3,500/t.

- In the build up to COP26, feed supplement manufacturer and supplier UFAC has teamed up with RABDF and other industry stakeholders to highlight some key facts about the UK dairy industry's greenhouse gas emissions. Key facts include:
  - Dairy farming contributes less than 3% of the UK's total emissions.

- Nearly half (46%) of these emissions come from the natural process of digestion.
- It takes 158 litres of tap water to produce 1 litre of almond milk, but only 8 litres of tap water to produce 1 litre of cow's milk.
- The carbon footprint of UK produced milk is less than half the global average; 1.25kg CO_2e versus 2.9kg CO_2e per litre.
- If the world's 278 million dairy cows were as efficient as UK dairy cows, we would only need around 76 million cows to produce the same amount of milk.

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Straights Update

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

£/T for 29t loads delivery + £8/t haulage to central belt	Nov 21	Dec 21	Jan 22 - Apr 22	May 22 - Nov 22
Proteins				
Hipro Soya	371	371	363	337
Rapeseed Meal	320	310	310	-
Wheat Distillers Pellets	292	292	292	298
Starch				
Wheat	224	226	228	May 233 Nov 206
Barley	212	213	219	May 222 Nov 166
Maize	268	268	269	273
Fibre				
Imported Sugar Beet Pulp	268	268	268	273
Soya Hulls	243	243	242	May-Jul 231 Aug-Oct 221

Sources: SAC Consulting, Straights Direct, KW, AHDB, Defra and Scotgov on 5th November. Barley and wheat prices are based on delivery to central belt (for North-East, deduct £5/t for wheat), courtesy of Mark Bowsher-Gibbs, Senior Consultant, SAC Consulting. Prices do not include seller's margin.

Global News

- It is estimated that global grain prices will remain well supported into 2022 on the back of dry conditions in the southern US plains and the black sea region. Tightening world supplies is also adding support to wheat futures prices. The disastrous US and Canadian spring wheat crops tonnages have contributed to US spring milling wheat futures recording their highest level since June 2011 at the end of October. The USDA cut the estimated Canadian wheat crop by 40% on the year, down to 21 million tonnes. The US winter wheat crop for 2022 harvest is also under threat, with 43% of the crop in areas classified as moderate or intense drought.

- There is also uncertainty surrounding the 2022 winter grain crop potential from Russia which has kept wheat markets buoyant. Prolonged dry weather in the country has delayed winter plantings, with just 17.6 million hectares planted compared to the 19.5 million hectares expected to be drilled as reported by the Russian Ministry of Agriculture. Seventy percent of the Russian wheat production is winter drilled, and many areas have had half the average rainfall. Ukraine has been similarly affected by dry weather, with low soil moisture levels causing fears about its winter crop potential.

- Wheat exports from the EU have been currently estimated at 55% higher than last year due to early season purchases from the Baltic states, Bulgaria and Romania. This current rate of exports is unsustainable in view of the EU's wheat balance sheet and exports out of the EU block will have to be limited.

- The availability of wheat is also being squeezed by the increase in Russian export tax of $69.90/t, which is reducing wheat exports. In 2020 Russia was the world's largest exporter of wheat.

UK and Scottish News

- Industry predicts another good year for cereal production in Scotland with total cereals expected to be around the 3.1 million tonnes mark and above the 5-year average. Variability in yield, however, has been of particular note and spring barley predicted to have decreased both in area and yield compared to 2020 harvest, which was incidentally a record year. Barley supply has really tightened up in 2021 due to the small UK crop. At the same time, domestic demand is

expected to slip as the price discount to wheat narrows. This should keep export volumes up, but this barley should find a ready market given the currently high cost of world feed grains on export markets.

- Scotland's wheat production from the 2021 harvest is expected to be 20% higher than that of 2020, with yields predicted to have risen to around 9.2 tonnes per hectare this year. If this is achieved, this will be the second highest yield recorded over the last 20 years. A much better UK wheat crop in total (see table below) has boosted local availability and improved price competitiveness in contrast to very high costs for imported grain, particularly maize. This supports a sharp rise in domestic usage led by higher feed and industrial use (milling, ethanol, distilling). Imports however are expected to stay quite high as higher road haulage costs / lack of drivers encourage grain imports to port-side mills.

UK cereal balance sheets

	Wheat		Barley	
'000 t	20/21	21/22	20/21	21/22
Open Stock	2,438	1,416	1,357	1,058
Crop	9,658	14,022	8,117	7,108
Imports	*2,431*	*1,700*	*88*	*70*
Available	***14,527***	***17,139***	***9,562***	***8,236***
Seed etc	277	277	185	185
Domestic Use	12,911	14,745	5,307	4,114
Exports	209	594	1,290	1,000
End Stocks	1,416	1,800	1,058	1,046

Source: AHDB, DEFRA

- Malting premiums are still very attractive despite malting barley prices having fallen slightly towards the end of October. While UK malting barley is currently the cheapest in Europe, transport issues are hampering new export sales being made. Strong demand is likely to remain for the 2022 crop for all grades of malting barley at historically high prices.

- In Scotland wheat is more available to buy than barley, with demand for bioethanol plants yet to come. Home produced sugar beet pulp prices are likely to remain high this winter due to British Sugar having to buy more gas to dry the wet beet pulp.

- Soya appears to be good value, being the cheapest protein source per % protein. Distiller's dark grains look expensive compared to soya. Due to high gas prices, drying grains has become more expensive. It is expected that the Vivergo bioethanol plant will come on stream in quarter two next year with increased demand expected with the new E10 petrol mandate.

- Further increases in the price of urea/AN fertiliser are expected on the back of continued rising freight costs, export restrictions from China and demand from India still to come. The availability of imported AN remains tight and supplies are not enough to meet the market demand. It is also expected that prices for muriate of potash will rise between November and January, due to Brazilian demand driving up the global price of this product and likely affecting the UK market.

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Minimising Environmental Impact through Breeding

In August this year AHDB Dairy launched the new EnviroCow index, designed to help farmers produce replacements which have the least greenhouse gas (GHG) emissions over their lifetime per kg of solids corrected milk produced.

The EnviroCow index integrates cow lifespan, milk production, fertility and the new Feed Advantage index and is presented on a scale from around -3 to +3. The bulls which pass on the best environmental credentials to their daughters will have the highest positive figure.

Feed Advantage is related to feed conversion, highlighting bulls that are likely to pass on good feed conversion efficiency to their daughters. This index is expressed as a PTA (predicted transmitting ability) in kgs of dry matter saved in

each lactation due to better metabolic efficiency and lower maintenance feed cost.

The Feed Advantage index has been produced from research data from SRUC's Langhill dairy herd in Dumfries collected over 30 years, where dry matter intakes have been recorded in individual cows throughout their lives. The index is based on data from nearly 1900 cows encompassing almost 4700 lactations ranging from lactations one to four. The cows' actual feed consumption was compared to the expected intake based on the cows' maintenance requirement, solids corrected milk production and adjusted for body weight. Cows with lower actual intakes than expected are identified as efficient converters and the data has shown that the most efficient cows can eat up to 400kg less dry matter per lactation than the least efficient cows, resulting in less feed required for the same level of milk output.

There are a number of genomic Holstein bulls with an EnviroCow index greater than +3, with the genomic Holstein bull Genosource Captain having an EnviroCow index of +5.1. It is perhaps no surprise that this bull is also currently ranked number one for £PLI at 944. His Feed Advantage score of 260 means that his daughters are expected to eat 260kg less dry matter intake per lactation compared to daughters from a bull with a Feed Advantage of zero for the same level of production.

It is not surprising that bulls with a high £PLI will also score well on the EnviroCow index as £PLI identifies sires producing the most efficient daughters with good health credentials. Both these new indexes will help farmers to reduce their environmental impact but also increase their profitability without compromising on cow health and fertility.

On the 1st of November, the UK Dairy Roadmap group, led by AHDB, the NFU and Dairy UK announced new sustainability pledges for the UK dairy industry. The goal is for the sector to achieve net zero carbon by 2050 and to continue to make positive changes to reduce GHG emissions to help limit global warming caused by methane and nitrous oxide. The following key activities are planned:

- Set targets to decrease emissions from across the dairy sector. Targets will be set according to science-based practices and advice and will be aligned to the aims of limiting global warming to less than 1.5˚C/year and supporting the UK net zero ambition.
- Validate a robust carbon footprint for the UK dairy industry and develop frameworks to allow extensive measurement and collation of environmental data from dairy farms including carbon footprints.
- Create specific KPI's and guidance to help support wider measurements and improvements in reducing GHG emissions.
- Investigate potential changes required by UK dairy farmers through modelling exercises to help them achieve a lower-carbon enterprise in the future.

For more information on the UK's Dairy Roadmap Climate Ambition see: https://www.dairyuk.org/wp-content/uploads/2021/11/Dairy-Roadmap-Climate-Ambition-Final-Version.pdf

While the dairy sector is estimated to produce just less than 3% of the UK's total emissions, with an average carbon footprint of 1.25kg CO_2e/kg of fat and protein corrected milk (just 43% of the global average), we must all play our part and breeding more environmentally friendly cows is just one of the many ways to help achieve the sectors' goals.

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How Many Litres of Water do Your Cows Drink?

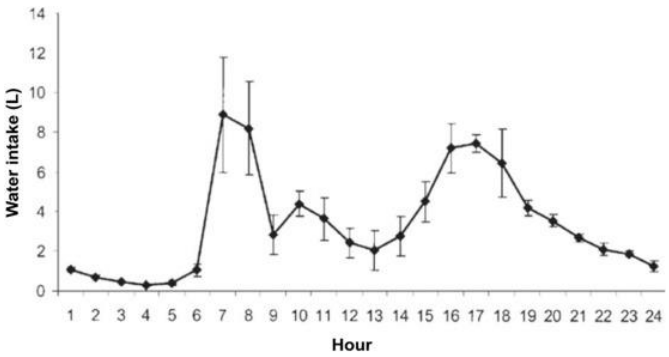
Water is a vital nutrient of a dairy cow's diet. However, it is not generally monitored as closely as the ration in terms of quality and intake. It has several functions including digestion and the transfer of nutrients, control of body temperature and water balance in the body and has a key role in the production of milk.

Water intakes will vary over the course of a lactation due to the amount of milk being produced and for every litre of milk a cow will drink between four and five litres of water. A small proportion of this water (10 to 20%) will be coming from the ration depending on its overall dry matter. So, if a cow is producing 35 litres of milk, her overall water intake for the day could be between 150 to 175 litres. Water represents around 87% of milk volume depending on the solids content. Therefore, it is important to ensure that there is plenty of water available for cows to drink regularly

over the course of a day. Dairy cows tend to drink water in short bouts of between 6 to 12 times per 24-hour period and in each bout, they will consume about 10 to 20 litres of water. A cow can drink at a rate of 15 to 20 litres per minute as they are suction drinkers. Initially they will test the water by lapping it before committing to drinking and cows will spend approximately half an hour of their day at a water trough lapping and drinking.

Dairy cows tend to have particular times of the day that are their preferred drinking times, and these typically occur after feeding and after milking as shown below. Ideally, the water temperature should be similar to the body temperature of the cow for optimal intakes.

The diurnal pattern of water intakes by lactating dairy cows that were milked at 05:30 and 16:30



Source: Jensen and Vestergaard, 2021.

Water availability is an important factor to consider within your sheds. Have the cows got easy access to the trough? Is there enough space for multiple cows to drink at once? Depending on the group size, there should always be at least two water troughs (one trough per 20 cows) within the shed and ideally these troughs should not be located side by side. Water troughs in different areas of the shed allow for less dominant cows and heifers to drink without being bullied out by the more dominant animals. At least 10% of the herd or group should be able to drink from a trough at one time, with the minimum trough space per cow being 10cm. Anything that restricts water intake will impact the milk production of each cow, so it is key to ensure that all cows have good access to the water troughs.

Good management of water troughs should ensure that clean, fresh water is always available as poor water quality can impact on intakes. Water contamination can occur from faecal matter, dust or spilled feed entering the trough, which can lead to the growth of slime moulds. Contaminated water can potentially have an impact on herd health if it is left unmanaged in severe instances. To maintain a clean and fresh supply of water, troughs should be regularly cleaned and positioned to avoid faecal matter entering the water. Nowadays, water troughs can come with a variety of ways to keep them clean including a tip over trough which can be easily tipped over to empty them or fixed troughs with a drain hole which allows the water to drain away. Cow behaviour will indicate if the water is contaminated as cows will lap the water but may not commit to drinking and move to a different trough within the shed.

Water availability and quality play a fundamental role in water intakes which in turn have an impact on milk production.

Reference: Jensen, M.B. and Vestergaard, M. 2021. Invited review: Freedom from thirst – Do dairy cows and calves have sufficient access to drinking water? Journal of Dairy Science 104: 11368 – 11385.

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The Return of the Agri-Environment Climate Scheme

Dairy farming across Scotland is coming under increasing pressure to deliver on conservation outcomes considering the biodiversity crisis, with some buyers building measures for conservation into milk contract requirements.

Dairy farming is by its nature encouraged to grow highly productive pasture and graze it efficiently, and with the distribution of designated nature sites being disproportionately located in the uplands, lowland farming in general has never had the same incentives to farm with biodiversity conservation in mind.

2021 has been a challenging year for conservation efforts across Scotland, with a restricted funding round for Scotland's Agri-Environment Climate Scheme (AECS). Therefore, the opportunities to invest in natural capital and manage and create

new habitats across the farm were just not feasible for many. The 2021 funding round has focused to a large degree on benefiting designated nature sites and their protected features - something that made landscape scale environmental contracts unattainable for many in the dairy sector.

The AECS as a scheme provides five-year environmental contracts to farmers who undertake management of farm habitats for conservation benefit. This could include anything from implementation of a moorland or deer management plan, management or creation of species-rich grassland or other native habitats, provision of a hedgerow management plan or options to maintain winter stubbles and water margins for the protection of the farmed water environment. Historically these management options have been based on a farm's main location code, with corresponding management options linked to regional priorities. The scheme also has support for a variety of capital items that supports these broader priorities, including a variety of fencing options, gates, hard standing and concrete, as well as options for scrub and bracken control.

In addition to the land based environmental options, funding provisions have been available for public access, organic conversion and maintenance and perhaps most importantly for the dairy sector, support for slurry stores and lagoons. With the spring consultation on changes to storage and spreading requirements, now may be the perfect time to review your waste and nutrient management plans and the opportunities for investment.

On Thursday 28th October Scottish Government announced the return of AECS with a 2022 funding round and similar commitments planned for 2023 and 2024. While this is no doubt influenced by the COP26 climate conference in Glasgow, it nevertheless shows the level of seriousness with which Scottish Government wishes to address nature's decline in Scotland.

With increasing uncertainty over the long-term plan for farm support and fragility in the markets, think supply chains and inorganic fertilisers, the AECS provides a degree of certainty and stability, as well as providing the support for farm infrastructure investment. Farmers will no doubt be keen to apply, although Scottish Government are still to update the scheme guidance, with no indication of when the scheme will open for applications but early contact with your agricultural consultant to discuss is advised.

On Thursday 18th November the Farm Advisory Service (FAS) will be running the webinar "Are You Milking Your Environment?" with special guest speaker Donal Sheehan about how future farm support could be linked to the opportunities for biodiversity on your dairy farm. For more information and to book your place please visit: https://www.fas.scot/events/event/webinar-are-you-milking-your-environment/

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Planning Now for Spring Grass

With most cows now housed and the winter routine underway, it is the right time to be planning for spring 2022. If you already operate a rotational grazing system, winter is the time to take care of infrastructure maintenance to tracks and fences and adjust paddock sizes as required. If you are considering grazing your cows or youngstock on a rotational system next spring, then you need to plan now to ensure you are ready for turnout.

Why consider setting up a paddock system?
Grazing cows and youngstock on a paddock system is simpler than it might first appear compared to set stocking and gives the opportunity to reduce production costs through better utilisation of grass, improved animal performance and increased profitability.

Where do I start?
The optimum time to graze grass is at the 3-leaf stage. The plant takes around seven days to grow each new leaf, depending on the time of year and so at peak spring/summer growth you will need 20 - 25 paddocks to ensure each paddock gets a sufficient rest period. To achieve maximum grass intakes in dairy cows it is best to give access to fresh grass after each milking and so you may wish to have 10/12 larger paddocks subdivided with temporary fencing to manage this.

Paddock size will be dictated by the size of the group you wish to graze. Target dry matter intake for dairy cows is 3% of bodyweight and so a 650kg cow will eat around 20kg of dry matter (DM) a day. Assuming she is supplemented with 6kg cake per day in the parlour (~5kg/DM), she will require around 15kg DM grass intake. It is important to measure your grass to gauge how much feeding is available for the cows and careful monitoring is required throughout the season to match grass growth to demand. As a rule of thumb cows should enter the paddocks with a grass height of around 10 to 12cm (2800kgDM/ha) and come out around 4 to 5cm (1500kgDM/ha) and so are consuming 1300kg DM/ha. Grazing grass above 2800kgDM/ha will be of lower quality and grazing below 1500kg DM/ha will slow the regrowth of that grass plant. As a rough guide, 100 cows will require a 1.2ha paddock daily to achieve an intake of 15kg DM, split in half to provide fresh grass after both morning and evening milking.

Paddock infrastructure
Where possible choose fields which are easily accessible and free draining to split into paddocks. Make use of existing farm roads and tracks to get you started. Paddocks can be split using wooden stabs and single or double electric wire (if youngstock are going to be grazed too). It is important to keep fence lines weed free to prevent the voltage dropping. Paddocks can then be subdivided for day and night grazing using temporary wire and posts (invest in a geared reel, it makes reeling in the wire a whole lot quicker!). Temporary fences give you the flexibility to adjust the size of grazing area and ensure cows are getting the highest quality and appropriate quantity of grass.

Placement of water troughs can sometimes be the trickiest part of setting up a paddock system. Choose central points to place troughs so that they can be accessed from two paddocks to cut down on the number required and can be used for day and night grazing. Avoid placing them near paddock entrances as this encourages crowding and increases poaching in these high traffic areas. Cows require free access to between 75 and 125 litres of water per head per day (depending on yield) so ensure troughs are big enough to meet the needs of the group size.

If you would like further information on rotational grazing, or on setting up a paddock system for your herd, please call the FAS Helpline on 0300 323 0161.

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Novel Forages - Growing Lucerne in Scotland

The globally changing climate will have effects on the Scottish growing conditions for many crops. This could create growing conditions that could facilitate the use of more novel crops, especially for forage. Adaptation Scotland produced a report earlier this year suggesting Scotland will experience warmer, wetter winters, with average winters projected to be around 5% wetter and 1°C warmer by 2080. Average summers are estimated to produce hotter, drier summers, with greater extremes, and are projected to be around 1°C warmer and 11% drier. These changes are expected for a low global emissions scenario.

The SRUC Dairy Research and Innovation Centre in Dumfries has considered the use of lucerne (*Medicago sativa*) as an alternative forage crop as this is a high protein forage legume (18-22%) that has great potential as a forage feed for dairy and beef cattle and sheep. Current conditions in Scotland are not as favourable for the growth of lucerne as a result of the cooler climate, acid soils and wetter soils. However, crops have been established and produced sufficient forage. A soil temperature of 8ºC is required for successful establishment and the main aim in the first year of

establishment is to ensure sufficient biomass to allow the crop to go into the first winter with good root reserves, which can be done by delaying the first cut until after flowering. Well drained soils are essential as the young root of lucerne plants is sensitive to water-logging and it is essential that the soil has been limed to provide a pH of 6.2 or greater.

A crop of lucerne

Source: Cotswold Seeds

Little or no nitrogen is needed as the roots naturally 'fix' nitrogen and only up to 30 kg/ha during germination is suggested. As with other forage crops there is a balance between crop yield, forage quality (especially digestibility) and persistence and general recommendations are to cut when 5-10% of the plants are flowering. Lucerne has been bred to grow in a range of climates with the Flemish or northern types more winter hardy and a more intense winter dormancy. A spring-sown crop will be ready for its first cut in late July of the first year. However, as the crown of the plant is the source of regrowth, cutting should not be lower than 7cm from the soil surface. Similar to perennial ryegrass, lucerne can be cut several times throughout the growing season, generally from May onwards. In a four-cut regime (about late May, early July, mid-August, and October), the first two cuts together account for 70% of the annual yield while the last cut in October accounts for only about 10%. Once established it is a high yielding crop with up to 12 tonnes dry matter/ha/year from multiple cuts.

Lucerne crops can yield well for up to 10 years, but most stands are kept for about 5 years, under ideal conditions. It is important to note that lucerne is auto-toxic, in that established plants suppress the establishment of young lucerne plants in the same place. This means that an interval of about six years between crops is required to prevent the residue of the previous crop impacting on the new crop and to prevent the build-up of diseases and pests specific to lucerne. It also means that stitched in/overseeding of a sparse crop is not an effective option.

During a feeding experiment at SRUC's Dairy Research and Innovation Centre where lucerne replaced some grass silage in milking cow diets, it was shown to increase dry matter intake, milk production and quality. As lucerne is more palatable than grass and maize silage the lower energy content of the lucerne is partly compensated by higher forage intakes. Milk output is maintained while supplementary protein feeding can be reduced, although the starch component of the concentrate supplement will need to be increased where lucerne replaces maize silage or other wholecrop cereals. Lucerne has a greater buffering capacity than maize silage and can have a beneficial effect on rumen pH.

Additional advantages from the growing of lucerne are the deeper roots can take nutrients from deeper in the soil and the larger, deeper roots can improve soil structure. Lucerne could be used as an excellent break-crop as the nitrogen it fixes can result in up to 70% less nitrogen required for any subsequent cereal crop.

More information about the growing and feeding of lucerne in cooler climates is available from the Legumes Translated hub: https://www.legumehub.eu/crops/lucerne/

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Dates for Your Diary

- 11th and 15th November - **Planning for Profit: Level 2 (2-day event)**. Hetland Hall Hotel, near Carruthers town, A75, Dumfries and Galloway DG1 4JX. Time: 10.00-16.00. For more information please visit: https://ahdb.org.uk/events/planning-for-profit-level-2-2-day-event

- 12th November - **Mobility Scoring Workshop** (on-line). For more information please contact Embryonics t: 01606 854411 email: accounts@embryonicsltd.co.uk

- 15th November - **COP26: Working Together to Reduce Emissions on Scottish Farms** (on-line). Time: 19.00-20.30. To book your place please visit: https://www.fas.scot/events/event/cop26-working-together-to-reduce-emissions-from-scottish-farms/

- 18th November - **Are You Milking Your Environment?** (online). Time: 19.30-20.30. To book your place please visit: https://www.fas.scot/events/event/webinar-are-you-milking-your-environment/

- 22nd - 24th November - **DIY Artificial Insemination Course**. Ayrshire. For more information please contact Philippa Groves at Embryonics t: 01606 854411 email: accounts@embryonicsltd.co.uk

- 22nd - 26th November - **Dairy Research Conference** (on-line). This multiday event covers a range of topics: dairy health, lameness, nutrition, fertility, grass and soils, breeding and genetics and youngstock performance. Full details are available at: https://ahdb.org.uk/events/dairy-research-conference-online

- 1st December - **The Impact of Your Team on Your Personal Effectiveness** (on-line). Time: 11.30-13.00. To book your place please visit: https://ahdb.org.uk/events/the-impact-of-your-team-on-your-personal-effectiveness

- 1st December - **Using Key Performance Targets to Improve Dairy Farm Margins**. Park Hotel Ayrshire, Kilmarnock, East Ayrshire KA1 2DP. Time: 10.00-14.00. To book your place please visit: https://ahdb.org.uk/events/using-key-performance-targets-to-improve-dairy-farm-margins

- 9th December - **Transitioning to Autumn Block Calving** (online). Time: 11.00. To book your place please contact Shirley Macmillan on Shirley.Macmillan@ahdb.org.uk or 07766402393.

- 16th December - **Getting High Yielding Cows Back in Calf** (on-line). Time: 12.00-13.00. To book your place please visit: https://ahdb.org.uk/events/getting-high-yielding-cows-back-in-calf

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

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