

# Agribusiness NEWS



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June 2022

## News in brief

### Food security moves to centre stage

As the war between Russia and Ukraine rumbles on and commodity prices continue to rise (food inflation as high as 8.9%), food security has become the main focus of global political conversations. Across the EU, and here in the UK, emergency measures are being considered to support cashflow for energy, fertiliser, animal feed & other raw materials for food producers. While moving into the summer months may ease some of the pressure on energy supplies, Russia has just cut gas supply to the Netherlands, Denmark and Germany, prompting a switch of CAP funds in the EU towards bioenergy projects.

The Ukraine crisis has definitely accelerated the rethinking of policies to put food security higher up the list, where climate and biodiversity have arguably been of greater focus in recent years. However, these goals are not mutually exclusive; the links and interactions between climate and food security are complex but we are beginning to see 'win-win' policies being prioritised, providing both food security and low carbon solutions. What has been previously economically unfeasible is now becoming a real option.

Closer to home, this month's policy update outlines a number of schemes now open, and highlights the direction of travel for environmental and climate related activities. Carbon audits are increasingly a key for accessing support, so if you haven't yet got one it is worth doing so, not least to help examine resource efficiencies on farm and where you might be able to make some cost savings.

In line with this we are featuring more carbon-related articles in Agribusiness News, to support industry with snapshot insights into these areas. As always, we welcome feedback on content and subjects covered, and if there is a topic you would like to see included please email the editor at [anna.sellars@sac.co.uk](mailto:anna.sellars@sac.co.uk).

### Next month:

- Soil testing
- Potato update

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### This month's editor:

Anna Sellars

# Policy Briefs

## Food Processing, Marketing & Cooperation Grant Scheme

The 2022 Food Processing, Marketing & Cooperation Grant Scheme (FPMC) in support of Scotland's journey to becoming a [Good Food Nation](#) provides grant funding to businesses within the Scottish food and drink sector. The scheme is open to both new and existing food businesses. FPMC funding can support:

- Capital costs of businesses involved in the processing of primary agricultural produce to develop new and improve existing processing facilities;
- Non capital costs e.g., consultancy fees;
- Support innovation and training;
- Support co-operation between food and drink producers, manufacturers and retailers/hospitality & food service sectors and/or research;
- Marketing produce at national and international trade shows/fairs.

Capital grant rates vary from 10-40% depending on business size and [eligibility of the type/types of agricultural products](#). A 50% grant is available for micro- to medium- sized businesses for innovation, consultancy fee, and attending trade shows/fairs. Large business can apply for a 15% innovation grant. Training grant rate range from 50-70% linked to the size of the business.

The application window closes on the 19<sup>th</sup> June 2022. All eligible costs must be claimed by the 31<sup>st</sup> March 2023. Full details the scheme can be found [here](#).

## Preparing for Sustainable Farming

As part of the recently published guidance on National Test Programme (NTP): Track 1 – [Preparing for Sustainable Farming \(PSF\)](#) the Scottish Government has announced support funding for:

- Carbon audits
- Soil sampling and analysis

**Carbon audits:** Businesses with an online Rural Payments and Services (RPS) account can apply for funding up to £500 for a carbon audit if they do not already have one or it is more than 3 years old. Under the guidance notes, the 'carbon audit must be created using a recognised tool such as SAC's Agricultural Resource Efficiency Calculator ([Agrecalc](#)(©)) and be aligned to Publicly Available Specification [PAS 2050](#) standard, and must have

carbon management and emissions mitigation recommendations for the business going forward.

**Soil Sampling & Analysis:** Business wishing to apply for funding for soil testing must have the land documented in their current year's Single Application Form (SAF) and must confirm that they have a carbon audit that is less than three years old, and, as noted above, aligns to PAS 2050.

Funding of up to £30 per hectare of region one land is available for soil testing for pH, phosphate, potash, and carbon. Testing for pH and carbon can be at either sample or land parcel level. Testing for magnesium and trace elements is recommended but voluntary. Analysis will be paid at cost plus an additional £4 per sample where gathering these is not included in the analysis cost.

Each year, applicants can apply for funding to soil test up to 20% of the available region one land on the holding. The maximum will be determined by the SAF claim for the same year. To ensure all eligible farming/crofting businesses can benefit, a minimal soil sampling allowance of £300 will be available to small businesses whose area of region one land means they would otherwise receive less than this amount.

## Just Transition Fund

The Just Transition Fund (JTF) is a £500 million, ten-year commitment aimed at supporting businesses and communities in the North-East and Morayshire to transition to net zero. The aim is to increase the economic resilience of the region by supporting projects from across sectors not just the energy sector.

For further details email:

[JustTransitionFund@gov.scot](mailto:JustTransitionFund@gov.scot)

## Key dates for June

Date	Action
June 10th	<b>National Reserve:</b> Final day for submitting applications and supporting documentation for an allocation of BPS entitlements.
June 19th	<b>Food Processing, Marketing and Cooperation Scheme,</b> closes (midnight).
June 30th	<b>Forestry Grant Scheme Woodland Creation.</b> Final day for initial planting capital claims to be submitted if woodland creation supports the area of land entered on your SAF 2022.

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# Cereals and Oilseeds

## Uncertainty prevails in the market

It has been a volatile time over the last few weeks from a fundamentals point of view as we continue to see production issues in the key exporting countries around the world. Global wheat and corn supply and demand continues to contract, with balance sheets falling below pipeline requirements.

The US continue to see issues with the winter wheat crop, with 30 out of 50 states experiencing droughts and additionally planting issues in the north and again in Canada for the spring wheat crop. Only a third of crops had been sown as of 16 May, down from the five-year average of 53%. In Manitoba only 10% of crops had been sown, trailing the five-year average of 77%, while in Alberta sowings of all crops are running behind last year and the average pace.

Dry weather in the EU is causing concern too. This is worrying, not just for French farmers, but for the world. France produces 35m tonnes of wheat (compared to the UK's 13m tonnes) of which it exports roughly half, making it the world's fourth largest exporter. Between 1 January and 9 May, France received an average of 200mm of rain. This is barely half the country's normal rainfall over that period and the least rain since 1960 in any year bar 1976 and 2011. French producers are already predicting small ears and a light harvest unless things improve quickly, but at the time of writing the weather forecast for the country looks extremely unfavourable in terms of a break in the drought.

India too, which has become a major wheat producer and even exporter, is currently struggling with a heatwave, so much so, its recently talked about contribution to exports is now perceived to be out of the equation. Even the wheat crop in China, the world's largest wheat producer, is thought to be in trouble because of unfavourable weather.

## Green Corridor

All in all, therefore, a very tight balance sheet and recent talks of humanitarian exports via a 'green corridor' out of the black sea has caught the market on the back foot and resulted in a sharp selloff in prices over recent days such that prices are on the slide and off the technical highs. Having witnessed the most aggressive wheat rally from 26th April to the recent contract highs of £360/t, we have seen an almost full retracement back to £310/t.

Nevertheless, Russia's blockade to date has crippled 10% of the world's wheat exports, sending global prices up by half since Putin attacked Feb. 24. Traders and Western allies have managed to re-route a fifth of Ukraine's normal grain exports via rail

to ports in Romania or on the Baltic, but the fact remains that 36 different countries depend on Ukraine for more than half their grain imports; the top customer by far is Egypt, followed by Indonesia, Pakistan, and Bangladesh.

## UK Cereal supply and demand

AHDB UK cereal supply and demand estimates released on the 26th May sees the UK wheat balance easing while barley remains tight. Closing stocks in previous estimates for the season were tight, or 'on a knives edge'. However, with the uptick in imports and relatively stable demand and export estimates, closing stocks have been revised up with a more comfortable amount of free stock to carry into next season.

## Oilseeds

The oilseed rape price dropped back at the start of the month to trade at 7-week lows in line with the relaxing oil price, reports of good US soya crops, and the rumours of cargoes potentially flowing out of Ukraine. However, the underlying supply and demand equation could not be ignored (despite Indonesia removing their short-lived export ban on palm oil) leading to significant price improvement overall.

**Indicative grain prices week ending 27th May 2022**  
(Source: SAC/AHDB/Graindex)

£ per t	Basis	June '22	Aug '22	Nov '22	Nov'23
Wheat	Ex farm Scotland	356	307	324	274
Feed barley	Ex farm Scotland	318	277	284	
Malt. barley - distil	Ex farm Scotland		307		
Oilseed rape*~	Del: Liverpool	757	697	707	650

(Source: SACC/ AHDB/ Graindex)

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# Beef

## Cattle prices hold strong

Prime cattle prices continue to remain strong, bolstered by tight cattle supply and continued retail and wholesale demand supporting prices.

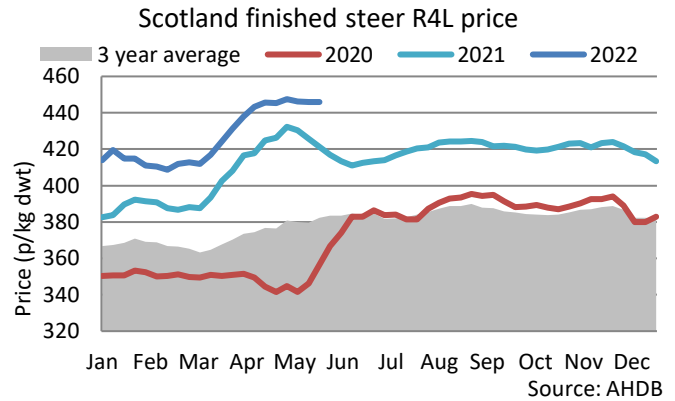
At the time of writing, finished cattle prices are sitting around 444-446p/kg for Scottish R4L steers.

For the year-to-date, prime cattle slaughter in the UK was estimated to be 607,000 head, down 5% year-on-year. Which will be behind the strong beef price.

However although the beef price looks good on paper, the reality is that it's just not enough, as margins are less. The last 12 months has seen an incredible change in the cost of production as producers have been hit with rising input costs. These record farmgate prices, which we have become accustomed to in recent months are very much needed however, for some producers they may not be enough to offset the hike in feed, fuel and fertiliser costs. Unprecedented forward cereal prices and continuing rising costs are no doubt making finishers question the viability of their cattle-finishing enterprise as businesses negotiate new feed contracts which could see the price on offer not stacking up. A significant price increase is needed soon or cattle could well be turned out to grass to reduce feed costs, stretching finishing times.

It is anticipated that cattle numbers will tighten as we head towards mid-summer and with a bank holiday at the start of June we may see beef stocks reduced and an increased appetite from processors to restock, which may lead to increases in prices. The challenge will come if numbers become very tight and cattle are not ready to slaughter the processor may feel that any increase in price will not actually bring out any more cattle and so the price may remain steady through the summer.

If we do indeed see a price increase towards £5p/kg then retailers would need to react to this, increasing meat prices in supermarkets.



## Auction sales preferring larger animals

Heavier store cattle 500kgs+ are commanding a premium in the store ring, with many trading around 250p or more, as finishers look for cattle that can be finished quicker. Uncertainty is hitting the lighter, smaller (around 350-440kg) grazing types with prices easing in recent weeks for these.

Cull cow demand continues, driven by the economic squeeze as consumers choose to buy the cheaper beef cuts (mince, burgers etc.). Farmers are receiving record prices for cull cows with many markets reporting sale averages of £1600+. The attractive cow trade is seeing a reduction in suckler herd numbers as farmers take advantage of this. Culling cows is a quick simple way to reduce numbers and costs however suckler farmers need to think carefully as hard culling could result in increased fixed cost per livestock unit.

There have been some strong prices at breeding sales, no doubt on the back of the high cull cow values as producers reinvest, which shows there is confidence out there.

## Control what you can control

New Zealand farmer Doug Avery highlighted (during his 2018 tour of Scotland) the importance of 'control what you can control' and worrying less about what you can't. As farmers, we cannot control the price of diesel or fertiliser or any other input but we can control usage and inputs that are used. Farmers will need to look at their current management practices in order to maximise margins.

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Scotland prime cattle prices (p/kg dwt) (Source: Drawn from AHDB and IAAS data)

Week Ending	R4L Steers (p/kg dwt)			-U4L Steers			Young Bull-U3L		Cull cows	
		Change on week	Diff over N. Eng.		Change on week	Diff over N. Eng.		Diff over N. Eng.	R4L	-O3L
7 May 22	446.3	-1.2	-4.5	445.1	0.6	-3.7	444.7	-3.9	401.3	337.4
14 May 22	445.8	-0.5	-7.4	444.0	-1.1	-8.2	444.8	-2.2	405.7	379.7
21 May 22	446.0	0.2	-4.8	441.0	-3.0	-5.9	444.8	-3.6	401.1	372.6

# Sector Focus : Pigs

## Higher prices offset by higher costs means the black hole remains for pig producers

The pig sector continues to suffer from a sustained period of significant negative margins. The fundamentals from the last update (see the [February 2022 edition](#)) remain, and Brexit continues to impact on the sector with UK producers finding exporting to the EU seemingly much more difficult than (cheaper) pigmeat going in the opposite direction.

There are signs that the backlog in processing is beginning to clear. However average slaughter weights reached a peak of 95.80kg in February but have since fallen to 91.19kg, although this is still over 4 kgs heavier than 12 months ago (AHDB). This will provide some welcome respite for producers in the shape of reduced overall feed requirements as pigs leave the farm closer to their intended sale weights, as well as taking pressure off buildings as less pigs are being carried.

The spring has also seen a much-needed increase in the pig price with the Standard Pig Price (SPP) rising from a low of 137 pence per kg (p/kg) in February to a current price of just under 173 p/kg. This has been driven by a similar sharp rise in the pigmeat prices in the EU, although are still below UK prices and as such are easily placed on UK retail shelves.

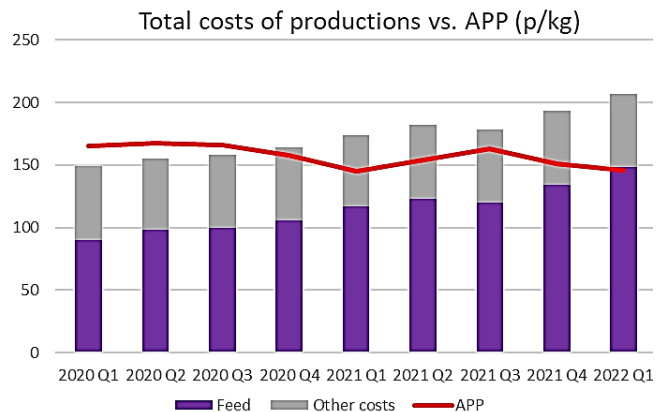
While these are undoubted positives to the sector, beleaguered pig producers are now being faced unprecedented feed price rises, with any gains swallowed up by increased barley, wheat and soya prices as the crisis in Ukraine continues along with concerns over harvest prospects and India banning exports of wheat. The market volatility currently being seen is also making pricing forward contracts very difficult. With feed being the largest cost for pig producers this has continued to put pressure on margins.

The latest data from AHDB relating to pig producer margins estimates that producers were losing £58 per pig with prices 61 p/kg below the cost of production in Q1 of 2022. This is the sixth consecutive quarter of negative margins, with prices received in Q1 barely covering feed costs, let alone other production costs such as energy or labour. It should be noted that this is before both the aforementioned increase in pig price and spike in feed prices. Further estimates from AHDB have pig production costs at a precedent 230 p/kg for the month of April.

With escalating energy costs now also becoming a major concern for indoor producers, the period of sustained losses continues to put a huge strain on

cash flows and reserves. With harvest still several months away, outgoings will continue to be high as most producers will require to buy in feed grains.

**Figure 1. GB APP vs. Cost of production Jan 2020 to Mar 2022, (Source: AHDB Pork)**



Cull sow trade has improved from a low of around 25 p.p.kg in December to now being worth around 65 p.p.kg. although the prolonged nature of the crisis is seeing plenty sows come forward as some herds are inevitably dispersed or cut back.

Weaner trade has also been affected with buyers adopting a cautious approach due to increasing feed prices and uncertainty over sale prices.

## Retailers to the rescue, or too little, too late?

The Scottish Government has announced a further £410,000 of support for Scottish producers, bringing the total level of support to just over £1.8m over the three tranches. Once again, English producer's requests for similar or indeed any support have fallen on deaf ears from Westminster.

The plight of pig producers has also now seen most retailers step in with offers of support with some fairly significant sums being promised. The full details of the support and how quickly it reaches the farmers remains to be seen.

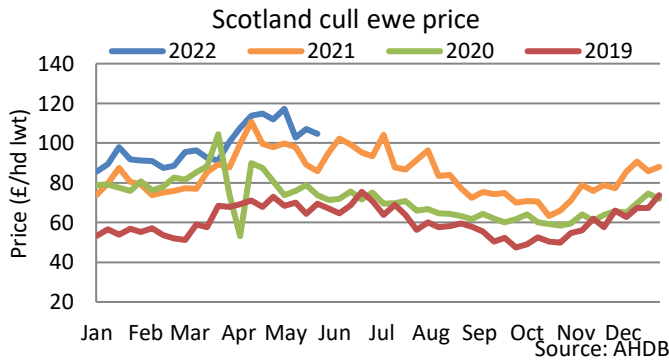
A recent survey from the National Pig Association (NPA) found that 80% of its members could not continue should the current extent of losses continue for the next 12 months. Anything that helps close the gap, whether it be from government, retailers or indeed the market itself will be extremely welcome and help re-build confidence for the future.

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# Sheep

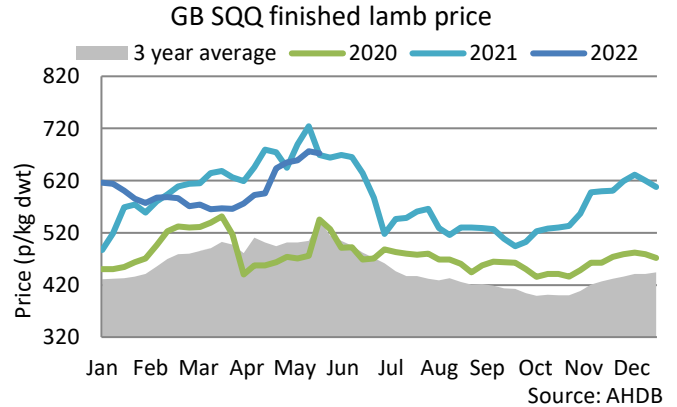
## Trade for culls remains sensational

The trade for culls typically follows the same pattern year on year, with peaks being seen around religious festivals such as Ramadan. However, this curve of demand is flattening out, showing year-round constant demand, driven further by global shortages of animal protein. The value has been increasing year on year which is clearly demonstrated in the graph. It is worth noting the type of ewe now coming forward to the market is a leaner hill ewe, with many fleshier continentals marketed post scanning and during Ramadan demand. The average price for the week ending 14<sup>th</sup> May was £107.11/head. Following the trend from previous years, combined with a strong demand, this level could easily be sustained into the summer. A greater level coming forward at weaning will dampen the market, as producers market non-efficient ewes.



## New season lambs flow through

New season lambs are starting to come forward, while the majority of Scottish auctions and slaughterhouses are still on old season hogs. The quality of these is poorer; many of these are now on concentrate to finish them, which is costing the producers, resulting in many being sold leaner than would be desired. However, the price is holding well, due to a short supply in the EU and the value of our lamb being below the French price (~€0.55/kg DW). This bodes well for the new season lamb marketing, where the forecast is for lambs to reach market at speed given the favourable conditions at lambing and grass supply across many areas of Scotland.



## Exports strengthen further

AHDB figures show that exports of sheep meat from the UK have risen by 19% compared to this stage in 2021, with a total of 17,000 tonnes being exported to March 2022. This is mainly driven by the UK lamb being priced competitively compared to lamb in the continent, making it very attractive. France has been the largest importer with 3,200 tonnes (an increase of 12%), following Germany with 1,300 tonnes (an increase of 27%).

Imports to the UK to the end of March stand at 16,000 tonnes (+12% on the year). Showing a reduction by 2,000 tonnes from New Zealand, and an increase of 1,400 tonnes (+146%) from Australia. It is worth noting the trade deal with Australia has not yet come into force and does not play any part in this increase. However, looking at the value of lamb the Australian lamb is cheaper than the NZ product (week ending 07/05/22 Australian lamb €5.20 and NZ lamb €5.07, making it more favourable for import. In addition the kill in NZ is lower than normal due to drought conditions reducing the performance of the lambs.

## Wool prices set to increase

It has been announced that British wool will increase prices by 135% for the 2021 clip, which will be paid when the 2022 clip is received. Free haulage from the collection point to the depot which was introduced in 2021 will also continue.

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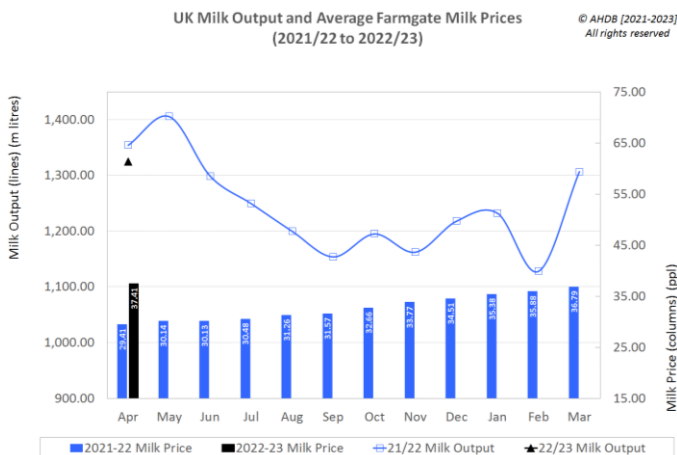
Week ending	GB deadweight (p/kg) 16.5 – 21.5kg				Scottish auction (p/kg)				Ewes (£/hd)	
	R3L	Change on week	Diff over R2	Diff over R3H	Med.	Change on week	Diff over stan.	Diff over heavy	Scottish All	Eng&Wal All
07-May-22	<b>658.0</b>	3.6	5.1	-0.5	<b>270.60</b>	-9.1	17.1	18.4	102.79	106.29
14-May-22	<b>676.1</b>	18.1	2.8	-0.3	<b>304.90</b>	34.3	-6.4	15.4	107.11	111.16
21-May-22	<b>669.7</b>	-6.4	1.6	3.5	<b>316.00</b>	11.1	-2.1	17.1	104.74	112.59

Deadweight prices may be provisional. Auction price reporting week is slightly different to the deadweight week. Source: AHDB and IAAS. Standard weight 32.1 - 39.0kg; Medium weight 39.1 - 45.5kg; Heavy 45.6 - 52.0kg

## Concern over falling milk output

- UK milk output for 2021-22 is down by 109.54m litres against 2020-21.
- There is no sign of a slowdown to the reduction in UK milk output, despite the record price levels now being seen across the country.
- Some milk processors have raised concerns in relation to the security of milk supplies, nearer the end of the year.

The latest milk production statistics from AHDB for April 2022 indicate that output for the month is estimated at 1,324.82m litres (before butterfat adjustment) – a reduction of 29.33m litres from April 2021. Cumulative production for the 2021/22 milk year to end March 2022 has been revised downward to 14,904.94m litres (before butterfat adjustment), 109.54m litres down on the 2020/21 total. UK milk prices have continued to rise (see chart below). The latest monthly average price level for April 2022 is estimated at 37.41ppl, representing an increase of 8.00ppl against the average for April 2021. Whilst milk prices are continuing to rise, this has failed to provide adequate incentive for UK dairy farmers to lift production and there are growing concerns that we could see a shortfall in supplies later in the year. As we head into June, most UK farmgate prices have tipped well over 40ppl and there still appears to be scope for further price increases to follow.



## Farmgate prices: June 2022

- Arla – member price will increase by 5.0-euro cents from 1<sup>st</sup> June 2022. This takes the liquid standard litre price (LSLP) up by 4.32ppl to 45.97ppl, whilst the manufacturing standard litre increases by 4.49ppl to 47.79ppl.
- Arla organic supplies – the June 2022 also increases by 5.0-euro cents. The liquid standard litre for organic supplies increases by 4.32ppl to 52.27ppl, whilst the manufacturing standard litre for organic supplies increases by 4.49ppl to 54.34ppl.
- Müller - Müller Direct suppliers will receive a 1.50ppl increase from 1<sup>st</sup> June 2022. This takes the LSLP up to 41.25ppl for suppliers in Scotland. See Milk Price table below.

- Fresh Milk Company – 1.50ppl increase confirmed from 1<sup>st</sup> June 2022. This takes the LSLP up to 41.50ppl (see Milk Price table below). The manufacturing standard litre price increases by 1.56ppl to 43.17ppl.
- First Milk – FM milk price will increase by 2.00ppl from 1<sup>st</sup> June 2022. See Milk Price table below for June 2022 milk prices.
- Yew Tree Dairies – 2.00ppl increase confirmed from 1<sup>st</sup> June 2022. This takes the LSLP up to 42.00ppl.
- Tesco – 0.75ppl increase from 1<sup>st</sup> June. This takes the price for Müller Milk Group suppliers up to 41.59ppl. The milk price for Arla TSDG suppliers will move up 41.34ppl.
- Co-op – Following a 2.14ppl increase for May 2022, the Coop will add a further 1.07ppl from 1<sup>st</sup> June. This latest price increase takes the LSLP for June 2022 up to 41.18ppl.
- Sainsburys (SDDG) – 0.94ppl increase from 1<sup>st</sup> June 2022. This takes the LSLP up to 40.44ppl for Müller suppliers and 40.32ppl for Arla suppliers.

Annual average milk price estimates for June 2022 (ppl)	
Milk Buyers – Scotland	Standard Ltr*
Lactalis / Fresh Milk Co. (No profile or seasonality) <sup>1</sup>	41.50
First Milk Liquid <sup>1,2</sup>	40.65
First Milk Manufacturing (4.2% Butterfat & 3.4% Protein) <sup>2</sup>	42.05
Müller - Müller Direct - Scotland <sup>1,3</sup>	41.25

<sup>1</sup> Liquid standard litre – annual av. milk price based on supplying 1m litres at 4.0% butterfat, 3.3% protein, bactoscan = 30, SCC = 200 unless stated otherwise.  
<sup>2</sup> The FM member premium is set to remain at 0.50ppl from April 2021.  
<sup>3</sup> No monthly supplementary payment included in the price estimate. Includes 1.00ppl Müller Direct Premium and additional 0.25ppl haulage charge for Scottish suppliers.

## Dairy wholesale prices

UK dairy commodity prices (£/ tonne)	May 2022	Apr 2022	Nov 2021
Butter	5,890	5,890	4,380
SMP	3,310	3,430	2,600
Bulk Cream	2,579	2,612	2,139
Mild Cheddar	4,650	4,520	3,440
UK milk price equivalents (ppl)	May 2022	Apr 2022	Nov 2021
AMPE (2021)	55.10	56.32	42.28
MCVE (2021)	53.14	51.98	39.22

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## World milk production

Global milk production is showing a slight deficit against last year, with world output reduced by 0.9% between Feb 2021-Feb 2022. Reduced output in New Zealand and Australia were largely responsible with Feb 2022 output down by 8.2% and 6.1% respectively. The US has also seen reductions to monthly milk output during consecutive months between Nov 2021 and Feb 2022, however, cumulative output for the US remains 0.90% higher than one year ago. At the end of Feb 2022, cumulative EU output (excluding the UK) is only 0.20% up on last year.

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# Sector Focus : GreenCow

## Measuring enteric methane emissions

SRUC are hosting a novel research facility, named 'GreenCow', at the Beef and Sheep Research Centre, near Edinburgh. Consisting of six controlled environment chambers, feed intake recording bins, and a gas analysis system which continuously records gas concentrations, it aims to measure methane (CH<sub>4</sub>) emissions and investigate factors which influence levels of methane production from beef cattle. SRUC also has chambers for dairy youngstock at the Dairy Research and Innovation Centre, and small portable chambers for sheep.

### *GreenCow respiration chambers at SRUC's Easter Howgate Farm near Edinburgh*



Respiration chambers are considered the 'gold-standard' for measuring CH<sub>4</sub>, as they measure all emitted CH<sub>4</sub> and are highly accurate. They are an incredibly valuable resource and are the right choice when accuracy is required, e.g. for validating the efficacy of CH<sub>4</sub> reducing strategies. However, they have some limitations:

1. Low throughput (one beast per chamber per week);
2. They are labour intensive (daily mucking out, emptying feed bins by hand);
3. They cannot be used for grazing systems (although a 'cut and carry' trial has been undertaken where freshly mown grass was fed in the chambers); and
4. In placing an animal in a chamber its environment and behaviour can be changed, which can affect its feed intake and CH<sub>4</sub> emissions.

## Proxy measures for methane

There are a variety of proxy measurement methods available. They overcome some of these limitations but bring their own constraints.

**GreenFeed;** The GreenFeed system is a 'head chamber' type system where CH<sub>4</sub> in the breath of individual animals are analysed by an integrated gas analyser whilst they have their heads within a covered area. The system is suitable for both housed and grazing animals. The system dispenses grain or pelleted feed to encourage animals to visit.

An accurate estimate of CH<sub>4</sub> emissions depends on the animals voluntarily visiting the system regularly throughout the day, over several weeks, to build up a good prediction of total CH<sub>4</sub> emissions. SRUC have GreenFeeds available for trial work.

**Tracer gas:** Boluses containing sulphur hexafluoride (SF<sub>6</sub>), with a known gas release rate, are placed into the rumen and the animal is then fitted with an evacuated container attached to a halter, which collects gas from above the animal's nostrils through tubing. Methane emitted over a 24-hour period is calculated using the ratio of CH<sub>4</sub> to SF<sub>6</sub> in the gas sample.

The halter required for the SF<sub>6</sub> technique is bulky and can impact normal grazing behaviour, it is prone to breakage, often being damaged by animals, and only one datapoint can be collected per animal over a 24-hour period.

**Laser based systems:** The laser methane detector (LMD) is a hand-held device initially developed to remotely measure CH<sub>4</sub> in sewers. The LMD can be pointed at the muzzle of an individual animal to obtain a spot CH<sub>4</sub> measurement. However, measurement is significantly affected by wind speed, humidity, pressure, and wind direction. Measurements with the LMD are generally taken standing less than 3m from the animal's muzzle and over a period of 2-4 minutes. Movement of the animal's head may also affect measurements, and repeated measurements are required per animal.

**The rumen microbiome:** The rumen is home to an incredible diversity of microbes, with thousands of different species of bacteria, archaea and fungi. The composition of the microbes is influenced by the animal's diet, genetics, and environment. Rumen samples can be obtained from large numbers of animals relatively quickly (by naso-gastric tube), and microbes identified by gene sequencing in the lab. This is an active area of research at SRUC, and there are clear linkages between the abundance of specific microbial species and the volume of methane that the animal produces.

- *The above highlights some of the pros and cons of different CH<sub>4</sub> measurement methods, but is by no means exhaustive.*
- *Other systems in development and the accuracy of some is improving.*
- *The research begins to give a valuable indication of what may be beneficial to apply in real farming systems, although it should be noted that most methods are not yet commercially available or viable.*

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## Emerging carbon markets

As subsidy and finance reform in agriculture increasingly aligns with climate and environmental targets and compliance, carbon markets have become a core topic of interest.

The incentives to drive down emissions in food supply chains come from all angles – government, retailers, consumers, buyers, the finance sector – and while the agriculture sector itself faces no legally binding emissions targets (accounting for 7.5 mega tonnes CO<sub>2</sub> equivalent in 2019), it must play its part in Scotland's target of net zero by 2045.

Climate mitigation and adaptation will inevitably cost money, and as these flows of money begin to open up more and more, all industries are keen to make the most of opportunities from new sources of finance. It is likely that this finance will flow at a faster rate and higher value as 2050 and net zero targets draw nearer.

## The role of carbon finance for net zero

Since the emissions baseline of 1990, UK agriculture has managed to reduce emissions by 16%. Various modelling scenarios across farm enterprises estimate that continuing to improve marginal efficiency gains and other mitigation options, in line with the science and technology that is current available, may help to reduce agricultural emissions by around a third. However, agricultural production inherently emits greenhouse gases, therefore, in order to reach a net zero target, sequestration and offsetting is essential. The main options for this are improved grazing management (freeing up land for afforestation), and biochar soil incorporation using agricultural residues.

Soil carbon sequestration may also be an option here, although it is important to understand the wide variation in potential impact of agricultural practices on soil carbon sequestration (see next section), and limits to total sequestration amount relative to net emissions from other aspects of agricultural production systems.

Many farms have or are now baselining their emissions, and looking at ways they can reduce their overall carbon footprint. From this there are three main potential options for GHG reduction measures:

- No net cost/cost saving measures
- Measures requiring small cost or investment
- Measures requiring larger investment or structural change

Options two and three are where carbon finance has potential to play a role in enabling or incentivising

actions. This could include finance for mitigation measures (reducing GHG production), offsetting measures (counterbalancing emissions with carbon credits from another industry), or sequestration measures (capturing carbon in agricultural systems to offset emissions from farming systems). Carbon credits may be one means of finance, although finance also includes subsidies, grants and private investments.

## What is the potential to sell carbon credits?

At a time where money is tight and carbon appears to offer a new income stream, selling carbon credits linked to on-farm activities appears very appealing. However, there are many points to consider before jumping into the market, namely:

- **Establish whether you have anything to sell.** Carbon offsets or sequestration may be small relative to total emissions of production. Also, soil carbon stocks are not the same as sequestration, credits cannot be linked to stocks. Soil carbon can be sequestered or lost, and soils reach a 'saturation point' where they reach limited further sequestration potential. Only credits linked to sequestration can be sold if you meet required criteria. For more background on soil carbon sequestration see the [June 2020 edition](#).
- In most cases **carbon credit payments require additionality**, i.e. proof that the intervention of the land owner is responsible for any changes in soil carbon levels
- They will also **proof that carbon capture has occurred**, including a credible measurement of soil carbon levels over an extended period of time.
- The **market for soil carbon credits is currently unregulated** (unlike the woodland and peatland codes). A soil carbon code is in the process of development, due later this year.
- **Who knows where the carbon price will go?** Sell now and you might be kicking yourself in the foot in a few years as prices are likely to increase as pressure grows to reach net zero targets. If you decide to sell, sell only a share of what you can capture in any one year or spread any sales out.
- It is yet unclear what agriculture's strategy will be for net zero as an industry, relative to others. If credits created are sold to other industries, then the sector can no longer claim the credits and will struggle even more to reach GHG reduction targets. **Should credits generated be retained to offset agriculture's own emissions first?**

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# Sector Focus : Feed Additives

## Summary of feed additives available

Feed costs make up a large proportion of variable costs, therefore it is important to evaluate what is going into the ration and to ensure that particularly purchased feeds and any additives are being used efficiently. The use of feed additives is one strategy used in ruminant nutrition for a number of reasons, such as enhancing performance, enhancing feed quality or optimising the rumen environment. Feed additives are regulated under EU legislation and the food standards agency, which means they can only be placed on the market if they have been authorised for the purpose which has been stated.

The variety and effect of feed additives on the market is vast. Some examples of feed additives include:

- **Buffers** – traditionally used in rations high in starchy feeds (e.g. barley beef rations) or animals being fed silage that is low pH. Buffers aim to counteract the acid load, providing an optimal rumen environment for fermentation and reducing the risk of acidosis.
- **Probiotics** – studied for their use as alternatives to antibiotics and ionophores (growth promoters that have been banned in the EU since 2006). In general, they are classified as lactic acid producing bacteria, lactic acid utilising bacteria, yeast, or other microorganisms.
- **Prebiotics** – organic compounds that cannot be digested by the host but can be utilised by specific microbes. E.g. MOS (mannan oligosaccharides) used to increase colostrum quality and absorption in new-borns. Often used alongside probiotics.
- **Binders** – a substance that is added to animal feed in small quantities to trap mycotoxins preventing them from entering the blood stream where they can cause ill effects to ruminants.
- **Minerals/vitamins** – added to home mixes or supplementary purchased feeds to supply the required minerals that may be lacking in the basal feeds.

- **Protected amino acids** – generally targeted at high-yielding animals such as dairy cows to improve amino acid utilisation, supplying amino acids which tend to be limiting (lysine and methionine) and reducing excess nitrogen in the ration.
- **Enzymes** – have been researched to improve rumen fermentation utilisation of feed materials e.g., used to pre-treat feeds high in tannin and lignin which can inhibit the rumen flora, therefore improving digestibility.
- **Methane inhibitors** – feed additives targeted at reducing enteric methane emissions from ruminants. These range from natural plant extracts to synthetic compounds with various modes of action. The effectiveness ranges widely both between and within additives from a 10-80% reduction, with synthetic additives tending to have a greater effect.

## Which additive might suit your system?

There may be additives that you have fed in the ration for many years that have previously been required to fix a particular problem, e.g. heating of wholecrop that required a mycotoxin binder or an acidosis issue that was alleviated by rumen buffers in the ration.

Make sure that any additive in the ration is doing a job and is required. From the previous examples if clamp management has improved a binder is perhaps unnecessary. Or if transition management and starch level is formulated to reduce acidosis risk this may remove the need for rumen buffers. In other words, if additives were used for an issue, does that issue still exist or are there other feed management strategies that could be tweaked to improve the problem?

Before purchasing additives look at the evidence base and research to support the claims and if possible, how you can measure any change/improvement you expect such as increased performance or higher feed intakes.

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## Key economic data

General Indicators		Price indices for October 2021 (Defra 2015 = 100)			
		Output Prices		Input Prices	
Base interest rate	1% (0.25% Dec 21)	Wheat	198.6	Seeds (all)	122.0
ECB interest rate	-0.5% (0.00% Sep '18)	Barley	216.7	Energy	168.5
UK (CPI) inflation rate	9% (target 2%)	Oats	172.3	Fertiliser	250.7
UK GDP growth rate	0.8% (Q1 '22)	Potatoes	138.2	Agro-chemicals (all)	171.4
FTSE 100	7,589 (01 Jun 22)	Cattle and Calves	130.1	Feedstuffs	154.2
		Pigs	109.6	Machinery R&M	122.9
		Sheep and Lambs	151.3	Building R&M	149.8
		Milk	150.2	Veterinary services	117.3

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