

Sheep & Beef News



February 2022

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Sheep Market Commentary

Week ending	GB deadweight (p/kg) 16.5 – 21.5kg			Scottish auction (p/kg)			Scottish Ewes (£/hd)	E&W Ewes (£/hd)
	R2	R3L	R3H	Stan.	Med.	Heavy	All	All
01-Jan-22	619.3	617.3	617.0	269.90	277.00	265.70	85.71	90.23
08-Jan-22	619.1	615.8	613.8	267.40	272.80	261.30	89.35	93.46
15-Jan-22	604.9	603.0	602.4	258.20	266.10	255.00	97.84	95.32

Deadweight prices may be provisional. Auction price reporting week is slightly different to the deadweight week.
AHDB and IAAS

Source:

Growth in the Sector

The EU published their medium term outlook for the period between 2021 and 2031 in December, which shows a forecast of the sheep sector growing over the 10 year period by 1.4% per year, generally due to a growing population and increasing income in the population. While we are no longer part of the EU, and our export volumes have dipped, this trend should be similar to the UK, in that domestic customers are also varying the type of meat they are cooking with, which is increasing the consumption of lamb, as well as a changing population, including religious traditions and migration.

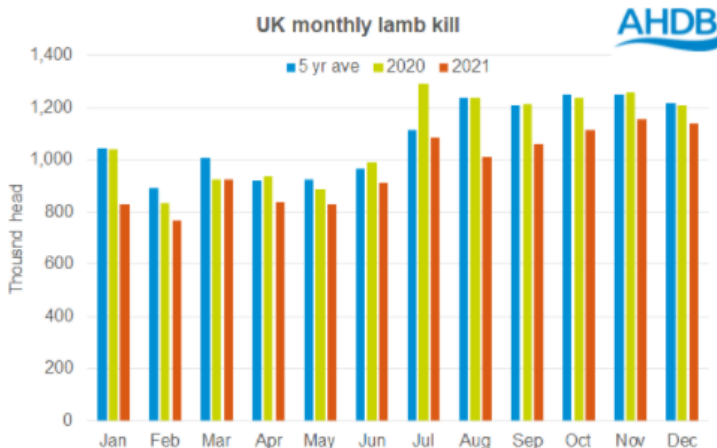
The report also highlights how the story of sustainability (environmental, economic and social) will start to influence the market and what meat the consumer purchases on their weekly shop. With more attention being put on the production process, the origin and health benefits of the meat. All of which UK lamb can score highly. The alternative “meats”, such as plant based and lab made meat, are forecast to grow, but with plant based protein currently only holding 1% of the market share, this growth will be small in this term.

Peaks and Troughs

With the above in mind, shows that sheep meat is forecast to have good demand in the following decade, meaning it shouldn't fluctuate in price to severely. However seasonal demand will remain at certain annual peaks e.g. religious festivals. Looking at dates for 2022 key dates are as follows,

Ramadan (fasting)	2 nd April – 1 st May
Eid al-Fitr (end of Ramadan)	2 nd – 3 rd May
Easter	17 th April
Eid al-Adha (Qurbani)	9 th July

Looking at the store lamb trade, and the strength in price for light lambs, shows there is great confidence in the late season lamb trade being at a premium. Looking at market trends, having both Ramadan and Easter landing over April further supports this thinking. AHDB data shows that the whole of 2021 the UK lamb kill stood at 11.7 million head, this is the second lowest level since 1979, with 2001 being the other. With a shortage of product and a growing market, this all signals to a good late season lamb trade.



Source: Defra

The cull ewe trade is also worth mentioning here, with tight supplies and demand from both export and domestic traders being strong is driving this phenomenal price. The ewe price showing an average of £95.32 for the week ending 15/01/22, compared to the same week last year of £85.55, demonstrates this £10/head premium. With many commercial flocks now starting to scan this year's lamb crop, the throughput to the live ring will increase as barren ewes are sold, which will take the edge of this market in the short term.

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Control Of Watery Mouth

You may already be aware of the current supply issue with Spectam Scour Halt. As the only oral antibiotic licenced for the prevention of watery mouth in neonatal lambs, planning should start now if you were expecting to use this product.

Ensuring good ewe nutrition, correct body condition score, a high standard of lambing shed hygiene and adequate, timely colostrum intake remain the mainstays of preventing watery mouth. Making use of scanning results, reviewing the ration and carrying out pre-lambing metabolic testing (+/- trace element assessment) may be particularly important this year.

The Sheep Veterinary Society have produced a document providing guidance for the treatment and control of watery mouth:

<https://sheepvetsoc.org.uk/news/sheep-veterinary-society-document-written-to-advise-vets-on-control-of-watery-mouth-in-neonatal-lambs-in-the-face-of-limited-supply-of-spectam-scour-halt-for-the-2022-lambing-season/>

Five years ago SRUC Veterinary Services reviewed the antibiotic sensitivity results for 295 isolates of E. coli from lambs less than 4 weeks of age.

- 52.5% of isolates were resistant to oxytetracycline
- 41.2% were resistant to ampicillin
- 29.8% were resistant to spectinomycin.
- 25% of isolates were resistant to four or more antibiotics.

These results highlight the importance of investigating neonatal lamb losses and carrying out sensitivity testing to inform you antibiotic use.

Increased awareness of responsible antimicrobial use combined with Spectam unavailability provides an opportunity to reduce the use of antibiotics in neonatal lambs.

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What To Do When Sheep Return From Wintering

Common sense says that sheep returning from wintering should be kept in their existing groups and isolated from other stock for a minimum of 4 weeks. This quarantine period allows you to monitor them for signs of ill health (e.g. rickets, ill thrift, scour) or infectious disease (e.g. footrot, contagious ovine digital dermatitis, conjunctivitis). It gives you time to administer any necessary treatments and prevent the spread of disease to other sheep. The risks will vary depending on how the sheep have been managed over winter. Blanket quarantine treatments may not be required in all cases and carrying out a risk assessment is in keeping with the drive to reduce medicine use. Things to consider include:

Where were they grazing?

Grazing fields used by someone else's sheep in 2021 means that your sheep could have become infected with worms. These could be resistant to anthelmintics that are effective on your farm. Plan a quarantine treatment programme with your vet/advisor to avoid introducing these to your holding. This is likely to include the use of monepantel (Zolvix) and sheep should be housed/yarded for 48 hours after treatment so that worm eggs are not deposited onto fields. Land grazed only by cattle carries a low worm risk but could be a source of liver fluke.

Did they have contact with other sheep e.g. inadvertent mixing or through fences and gates?

Being able to guarantee that your stock had **no** contact with other sheep over the winter period is valuable for peace of mind and ease of management on their return. Sheep scab may be your primary concern and could be picked up through direct contact with other sheep or indirectly from wool tags left on fences and hedges in the previous 2 to 3 weeks.

If the wintered sheep are in lamb, and have had contact with other sheep, maintain them as a separate group until after lambing and investigate any abortions that occur. This will help to reduce the spread of diseases such as border disease or campylobacter if infection has occurred during the winter.

Don't forget the possible risks from handling pens, equipment and vehicles.

Were they treated with anything before they moved to wintering or while they were away?

They may have taken problems (e.g. worms or fluke) with them when they left your holding in the back end and now require treatment.

Once you have assessed the risks (and the sheep) you may wish to do some testing to provide more information e.g.:

- 10 individual faecal samples for pooled worm and fluke egg testing.
- 12 blood samples to test for antibodies to sheep scab.
- 6 blood samples to assess if supplementation with trace elements (cobalt, selenium, copper) is required.

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Value Of Grouping Ewes On Lambing Date

Lambing is prolonged affair and with up to ~50% of ewes lambing from 10 day onwards there are a lot of ewes getting concentrate feeding for longer than required, including at peak rate.

This provides the opportunity, provided rams were raddled, to batch ewes based on due date and delay concentrate feeding of late lambers to a cost saving. This is done without impacting performance and also reduces issues with dystocia due to large lambs. Grouping can also be done based on pregnancy scanner judgement.

The table below shows potential savings in concentrate feed for a 1,000 head ewe flock scanning 200% fed 10.5 ME silage, by grouping ewes into early (1st 10 days) and late (day 11 onwards) lambers with feeding of lates delayed by 10 days. It shows that some 3.17 t of concentrates could be saved which at current high prices (£280) is worth £888.

It is quite common to do this strategy with 2nd cycle ewes (18 days onwards) but with a lower proportion of ewes (<20%) in this group, the saving is less than half at 1.4t worth £389.

Grouping on due date as well as lambs carried (main priority) does of course create more management groups so is not practical for small flocks but could still be applied to the largest group, singles or twins depending on scanning, to a cost benefit.

1000 ewe flock scanning 200%		Saving in concentrate feed (£280/t)		
Lambs carried	No. ewes (lates)	Per head (kg)	Total (t)	Total value (£)
Singles	70 (14%)	4.5	0.32	90
Twins	315 (63%)	6.5	2.05	574
Triplets	100 (20%)	8	0.80	224
Total	500		3.17	888

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Early Scans Show High Numbers Of Multiple Births

Why should scanning results be so high this year –

1. The slow start to grass growth last spring meant fields were heavily grazed. So when growing conditions did improve in late May there was a huge flush of young highly digestible grass, effectively flushing ewes which had been unable to put on condition earlier.
2. This was then followed by a very open autumn which allowed ewes to maintain or even gain condition with little if any, supplementary feeding.

Points To Ponder

1. Consider how you can successfully rear more orphan lambs? (See following article on automatic feeders.)
2. Consider how you would handle larger numbers of lambs if it is a wet spring. Straw is currently readily available at reasonable prices (around £50 per ton) and buying extra could be a good investment?
3. With the high cost and reduced availability of N fertiliser there is likely to be less grass grown this summer (obviously this will be mainly dictated by the weather we get!)
4. Does this mean it will be a good year to creep feed, possibly keep artificially reared orphan lambs indoors and finish them intensively? It is likely that there will be considerably higher numbers of store lambs coming onto the market next autumn?
5. Ewes will be leaner than normal having carried more lambs this winter coupled with higher stocking rates and lower grass growth this summer? Consider options for ensuring they regain sufficient condition ready for mating next autumn.

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Management Of Ewes with Multiples Pre-Lambing

Triplet bearing ewes in late pregnancy have a huge nutritional requirement, rising from an energy requirement of 12 MJ/kg DM at 7 weeks pre lambing to 20.3 MJ/kg DM one week pre lambing (based on 70 kg ewe), meaning they have around 10% higher energy requirement than twin bearing ewes in late pregnancy.

If their nutrition does not meet their demands, it can result in, small and weak lambs, insufficient quality and quantity of colostrum, metabolic disorders and even ewe death.

Tips to manage triplet bearing ewes,

- Manage in a separate group after scanning (as well as thin twins)
- Condition score at scanning and feed to gain condition if lean
- Aim for a nutrient dense ration offering the best quality forage and good quality concentrates (over 12.5 MJ ME), little and often (no more than 0.50 kg/head per feed)
- House early if weather conditions turn snowy or extreme mud
- Offer *ad lib* molasses through ball licks to further supplement energy intakes
- Keep a close eye on metabolic disorders e.g. twin lamb

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Automatic Milk Feeders For Lambs

Automatic feeders for orphan lambs are an excellent tool at lambing time to reduce labour, associated with bottle feeding. They also give the lambs a more natural *ad lib* feeding system to benefit their gut health, reducing common digestive upsets.

There are many options available on the market for lambs, with varying price, number of lambs they rear and suitability to systems. It is well worth looking at your options and understanding how the milk is mixed, if the machine is sited inside or outside a pen and how much time is required for cleaning.

Below I have summarised some of the products available on the market, this is not a comprehensive list and is aimed at showing the spectrum of products available, and the different technologies available.

Product	Approx. Cost (ex VAT)	Number of lambs fed	Sited	Power Required	Plumbed Water Supply	Mixes	Milk stored
Shepherdess	£150	Up to 20	Inside	Yes	No	No	Hot
Heatwave	£425	Up to 50	Outside	Yes	No	No	Cold
Britmix	£1,900	Up to 150	Outside	Yes	Yes	Yes	N/A
Volac Eco Lamb Feeder	£3,100	Up to 240	Outside	Yes	Yes	Yes	N/A

The above machines are an additional cost to a sheep system, but they deliver *ad lib* hot milk to lambs 24 hours a day, with time only being required to train lambs to feed and mix milk and clean the machine if the system doesn't automatically mix and clean.

A lamb will use approx. 9.5 kg of milk powder up to the point of weaning at 35 days old, at a cost of £44 per 20 kg bag, this equates to £20.90 per lamb in milk powder. Additional milk may be required when there is wastage, e.g. when milk is stored hot it will have a short shelf life, stored cold will last for 24 hours and milk that is mixed on order will have little wastage.

Hiring automatic milk machines is common, with most companies only offering purchase of machines. If we use the top range machine from the above table at an initial capital cost of £3,100 over 200 orphans the cost of this machine per lamb would be £15.50. Over a 5 year period the cost would only be £3.10 per lamb.

With lamb prices currently above the average (268.33p/kg week ending 12th January) and forecast to remain high for the coming season, then this investment is very justifiable, another way to look at it, would be calculating it against the cost of labour. With skilled labour at £13/hour, £3,100, would pay for 238 hours. Over 200 lambs would be 1.19 hours i.e. 7 minutes per lamb or 2 minutes save per day if lambs are weaned at 35 days, the machine paying itself in the first year.

There are many automatic feeders available on the market, understand how many orphans you are likely to have after scanning, and use this to base your decision on how robust you need the system to be.

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Suckling Behaviour Of Newborn Calves And Lambs

Recently I was lucky enough to go on a real farm visit! One point which came up was the position of newborn calves when trying to get them to suckle. The host was convinced that it was essential to have the calf parallel to the cow, with the length of the calf's body against the cow's side. In comparison putting the calf at right angles to the cow was a lot less successful. The group appeared to all agree with this observation. When I asked whether it was the calf who responded positively or the cow he was insistent the major benefit was in terms of calf's suckling behaviour.

Logically I can see some sense in the calf feeling a lot more stable having one side of it solidly supported against the cow's side. The other factor I thought could be involved would be the comfort, warmth, etc. the calf would receive from "hair to hair" contact between the two, so I asked tow of SRUC's researchers what they thought.

Calves (Marie Haskell)

I don't recall any research on this, other than the observation from a group of behavioural scientists that when recording suckling in calves on their dams, that the 'parallel' position was the 'normal' one. People

have observed that the 90 degrees approach was more likely to be used by cross-suckling calves 'sneaking' a drink.

I am not sure why this is the 'normal' position! Angle of the teats? Physical support and warmth would be important in the very young calf, but presumably less important when it gets older.

Lambs (Cathy Dwyer)

It is exactly the same in sheep – lambs will suckle in the 'parallel inverse' position when suckling normally from the ewe, and sometimes at an angle, or from behind if sneaking a suckle, or trying to suckle from a ewe who is not keen on them. I would always usually aim a lamb in from this 'parallel inverse' position if trying to get them to suckle, but also because this helps the ewe cooperate and stand nicely as she can sniff her lamb at the same time.

There is some old 1980s research, which shows the lamb has a set of reflexes about how it finds the teat, which involves moving along the woolly part of the ewe (or presumably the hairy part of a cow) until they find smooth skin at the udder and then they will push upwards to find the teat. You can reproduce this in newborn lambs by placing your hand on the top of their heads and they will bunt upwards as your hand is smooth not woolly (never tried it with gloves though). The reflex tends to disappear once they have suckled a bit. So I expect it is a common route for ruminants to reliably be able to find the teat. It also puts them in a good position for the mother to sniff and check they are their own offspring. Hence the other positions that calves and lambs attempt to suck at when not own, so I think it might be partially the mother repositioning in later development to ensure she can check who is suckling? In lambs often they are twins so they both come in together down either side of the ewe and she can check both easily!

Interestingly this year we had a group of lambs who were raised artificially on an automatic drinker (after about 24-48 hours on the ewe), and there they need to come in at right angles to the teat to suck properly. They all learnt this within 24 hours often from each other, once the first had got the hang of it. The manufacturers suggest that there is a bigger issue with older lambs who are used to suckling in the parallel inverse position who need to be retrained into a different angle as they try to suckle by standing alongside the teats not perpendicular. So I do wonder if it is partly the dam who reinforces the position, or is more cooperative with these positions which is why it is more successful, even if the newborn needs the cues of the mother's body first to find the udder?

Conclusion?

Never take a replacement from a dam whose progeny do not immediately suckle in the reverse parallel position!

Many thanks to Marie Haskell and Cathy Dwyer.

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Short-Scrotum Castration = Higher Welfare



Short-scrotum castration (SS) is an alternative to full castration (FC) where rather than putting a band (rubber ring) over the whole scrotum and removing the it with the testicles, the testicles are pushed up into the abdomen and a band is placed over the empty scrotum. This way the testicles are kept pressed up against the abdomen and should be too hot to produce viable sperm.

This is an established practice in New Zealand with more lambs treated by SS than FC. The practice has been shown to be significantly less painful than full castration with lambs exhibiting less behavioural and physiological signs of pain and distress. Studies have put the pain response at half of full castration. Since the testes will remain on the lamb they will also produce similar testosterone that an entire ram lamb would, which will increase growth rates over wethers. Consistently, studies have shown that SS lambs grow faster than wethers. Like entire ram lambs SS lambs will grow leaner than wethers.

With these well documented benefits to the practice I have been surprised by how little awareness there is among farmers. From the conversations I have had about this most were unaware of the practice. The biggest concern seems to be surrounding whether this method will reliably render the males infertile. A number of studies have looked at this. These studies have not recorded any SS lambs successfully

serving ewes. However, in a very small number of cases sperm was detected. Of these, 99% were abnormal and non-motile. So the chances of SS lambs successfully serving a ewe are incredibly small. It is also worth noting that the majority of these studies are from New Zealand or Australia where the banding was done at 5 or 6 weeks of age rather than within the first 7 days which would be UK practice.

Being interested in the practice, I decided to try SS on my own lambs and compare this with FC. Of approximately 120 male lambs the first half born were castrated with the SC method and the latter half were castrated by FC. The table below show the results:

	Weaning Weights (adjusted for age)	DLWG up until Weaning 17 th Aug	DLWG until weighing 4 th Sept	1 st DLWG until weighing 19 th Sept	2 nd DLWG until weighing 4 th Oct	3 rd
FC Twins	35kg	240g/day	245g/day	200g/day	243g/day	
SS Twins	36kg	248g/day	255g/day	284g/day	254g/day	
Ewes Twins	34kg	232g/day	190g/day	-	-	

The SS lambs grew faster than the FC lambs, both before and after weaning. On reflection, the effect may be greater, by chance the selection of SS lambs contained the majority of the triplets, one lamb was removed and fostered onto singles. These lambs would have had lower birth weights and potentially grown a little slower. Singles were also weighed but with very low numbers I did not feel the data was useful. After weaning the lambs were all run as one group on silage aftermaths and weighed at fortnightly intervals.

I was concerned that the SS lambs would grow too lean and be hard to finish or that they would look like rams and buyers would not like the look of them. On both these points we had no problems. All of the SS lambs were sold fat through the live ring and achieved prices as good as or better than wethers. Some of them did develop quite a strong ram look but this did not affect sale price. If selling these lambs store, buyer perceptions may be more of a challenge.

Another major plus was that it allowed us to get ewes and lambs out of the lambing shed quicker. We band lambs when they are a few days old. We do not band male lambs and put them out the same day because of the risk they are left behind or predation if they are lying in pain. With SS, the lambs exhibit very few if any signs of pain or distress and as such we put them straight out to grass. For producers who lamb outside and do not castrate less than a week old then this may be an alternative method which could be performed on older lambs without anaesthetic. However it appears in current animal welfare legislation there is no allowance for this and the practice may still be classed as castration with rubber ring.

Having trialled SS on my own lambs and read a number of studies I am confident the practice can be a higher welfare alternative to full castration. I believe short-scrotum castration, although not common place in the Scotland, has welfare and production benefits for sheep producers. If you have experience of, or are interested in this practice feel free to get in touch.

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Grazing Winter Cereals With Sheep

Grazing winter cereal crops with sheep is gaining popularity across Scotland. Funding from the EU Horizon 2020 MIXED project, allowed SRUC to run a series of replicated grazing trials at Craibstone farm, alongside monitoring of grazed commercial crops last winter.

SRUC used two grazing densities, alongside a set of control plots to investigate the impact sheep can have on cereal crops. The grazed and ungrazed crops were monitored throughout the growing season including tiller counts, weed scoring, disease levels, ear numbers, grains per ears and final yield. The only consistent difference found between the grazed and ungrazed parts of fields was that the height of the crop was between 3 and 5 cm shorter where they had been grazed.

In terms of nutritional quality, the grazing trial on one commercial farm was assessed prior to grazing and a winter wheat crop had 1,600 kg/ha Dry Matter (DM), with a crude protein of 335g/kg DM (33.5%) and a metabolizable energy of 9.9 MJ/kg DM. Although this isn't a lot of feed compared to a grass field, using a

mob grazing strategy, moving quickly across fields have worked well in practise. It has been found that cereals can be grazed quite hard, leaving minimal residual forage and the cereal crops still bounce back.

Additional benefits of grazing winter cereals include the option of sowing cereal crops earlier and using sheep as a management tool to control the crop growth throughout the winter. Grazing also has the potential to reduce disease in cereal crops, through the removal of diseased leaves.

The replicated trials and commercial farm monitoring are now being repeated this winter and we will provide an update on how the grazing effects crops growth and yield.

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Relative Feed Value Of Silage At 2022 Prices

The table shows the relative feed value (RFV) using Jan 2021 prices of barley at £160/t and rapeseed meal at £320/t to give a value for forage in terms of energy and protein. Generally, if the RFV is greater than the cost it is good value, but how much does it cost to make silage? (see following article).

The disadvantage being that RFV's only accounts for the energy and protein value of a feed. Additional attributes of silage such as the high level of fibre, which for ruminant animals promotes saliva production through chewing the cud, therefore maintaining a stable rumen pH is not taken account of. The current feed prices further emphasise the value of producing and feeding good high-quality silage.

	Dry Matter (%)	Metabolisable Energy (MJ/kgDM)	Crude Protein (g/kg DM)	Relative Value Fresh Weight (£/t)	Relative Dry Matter Value (£/t)
Protein Feed (Rapeseed Meal)	90	12.0	400	320	355
Energy Feed (Barley)	86	13.2	115	160	186
Grass silage (poor)	25	9	90	33	132
Grass silage (average)	30	10.5	100	45	150
Grass silage (good)	30	11.5	140	55	185

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The Increased Cost of Making Silage

The previous article shows the relative feed value of poor, average and good quality silage from last year's silage analysed by SRUC. However, to know whether these were a good or poor buy we need to know the cost of silage making.

The following table shows the real life, total cost of first and second cut from a commercial farm.

Total Cost of Silage – 2021 Prices

	1st Cut	2nd Cut
Kg N fertiliser/ha	100	80
Cost £/ha	£172	£138
Total cost £/ha	£424	£390
Fertiliser % total cost	40%	35%
Total cost £/t DM	£83	£93

The total cost of production was £83 and £93 per tonne of DM respectively for first and second cut. Compare first cut with a relative feed value for average quality silage of £150 per tonne, this leaves a margin over total costs of £67 per tonne or £340 per ha.

Outlook for 2022?

With the large increase in price for fertiliser and fuel, total costs for this year will be much higher.

Total Cost of Silage – 2022 Prices

	1 st Cut	2 nd Cut
Extra cost of fertiliser/ha	£344	£276
Extra cost of fuel/ha	£25	£25
Total cost £/ha	£793	£691
Fertiliser % total cost	65%	60%
Total cost £/t DM	£155	£165

The above table shows the **additional increase** in fertiliser and fuel cost per ha compared with last year. Total costs £/ha will increase by 87% and 77% respectively for first and second cuts, assuming inputs are the same as last year. This increases the proportion of total costs for 1st cut due to fertiliser from 40% last year to 65% for this year.

However, feed prices have also increased compared with last year which increases the relative feed value of silage as can be seen in the following table.

Relative Feed Value of Silage 2022

	Dry Matter (%)	Metabolisable Energy (MJ/kg DM)	Crude Protein (g/kg DM)	Relative Value Fresh Weight (£/t)	Relative Dry Matter Value (£/t)
Protein feed (rapeseed meal)	90	12.0	400	333	370
Energy feed (barley)	86	13.2	115	230	267
Grass silage (poor)	25	9	90	47	186
Grass silage (average)	30	10.5	100	64	215
Grass silage (good)	30	11.5	140	75	250

Source: Courtesy of Mary Young

Although the expected total cost for first cut this year will be £793 per ha, this increase will mean the cost per ton of dry matter is £155. The increase in feed prices will increase the RFV for average quality silage to £215 per ton of dry matter. For first cut this still leaves a margin of £60 per ton of dry matter, just 11% lower than the margin for 2021. On a per hectare basis this is a margin of £306 per ha.

The final table shows a comparison of the RFV, total cost and margins for the two years.

Comparison Of Margins £/t DM For First Cut 2021 v 2022

	2021	2022
RFV Average £/t DM	150	215 (+43%)
Cost £/t DM	83	155 (+87%)
Margin £/t DM	67	60 (-11%)

The conclusion would appear to be to continue to apply normal levels of fertiliser or just fractionally less, which will have a relatively small impact on margins per ha and ensure normal levels of forage for next winter. In fact, with many people reducing N inputs, which is likely to result in a shortage of forage next winter, increasing feed prices which would further increase the RFV for silage, it could well show a bigger margin by next winter?

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Managing Forage Supplies

As we are seeing the effects of climate change on more extreme weather events, it is becoming more difficult to predict the length of the winter housing period and hence the amount of forage and bedding required. The effect of housing and turnout being earlier or later for a range of “normal” winter housing periods are shown in the following table, based on a 20% difference in normal dates. The potential variation increases the longer the normal housing period is.

Effect Of Date Housed/Turnout On Winter Housing Period

“Normal” housing period (months)	± 20% (weeks)	
	In 1 Season (housing or turnout)	In Both Seasons (housing and turnout)
3	2 ½	5
4	3 ¼	6 ½
5	4	8
6	5	10

As can be seen, a 20% change in one season (column 2) for a unit with a normal winter housing period of just three months is half that compared with a unit with a normal housing period of six months.

The third column gives the potential increase/decrease in the winter housing period when housing is delayed and turn out is early (or housing is early and turn out is delayed). This scenario gives a 40% increase/decrease in the amount of bedding and forage required over the normal housing period!

We have said a lot about forage budgeting in previous articles. A good visual indicator of silage use would be to paint a clear mark on the side wall of the silage pit where the silage face is on e.g. 1st February every year (or the same date every year). Then keep a note of either when the silage runs out or how much is left when feeding stops.

Checking the mark on the silage pit wall each year on the same date will give a guide as to how many days feed is left in the pit, assuming livestock numbers do not change much from year to year. This simple guide could also be used in conjunction with SAC’s 20th February prediction of whether turnout will be early or late that year.

Bear in mind that a late spring will have a greater impact on forage and bedding requirements than early housing, especially for breeding units. Straw requirements for bedding will be greater with spring calved cows and when ewes are housed for lambing. Feed requirements will also be greater, with calved cows requiring a higher dry matter intake compared to dry cows. The increased forage demand will be less for farms with finishing cattle or those that routinely selling stores in the spring. Flexibility in selling date can help deal with a potential forage shortage due to a late spring turnout.

While it is not possible to know the winter demand for straw and silage when making 1st cut silage, silage making decisions later in the season, can be based on how much carryover stocks there were at the end of the last housing period. This will help to make decisions on whether to aim for a second or third cut of silage or whether some cereal should be made into wholecrop to help spin out silage stocks.

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Mineral Content Of Grass Silages

The table shows the mineral content of grass silages analysed in July – December 2021 at the SRUC lab. Note the wide range of results for each mineral. As with all silage analyses there is no “average” silage that will correlate exactly to the figures below.

Mineral nutrition requires a holistic approach, the complex interaction between minerals will vastly alter the amount needed by the animal to meet requirements. It is advised to have your own silage analysed and work with your adviser/nutritionist to identify any shortfalls/ excess to the livestock requirements.

Macro minerals	Overall Average (g/kg DM) Range in brackets	Dairy Average (g/kg DM)	Beef & sheep Average (g/kg DM)
Calcium	6.0 (3.6 -11.2)	5.6	6.2
Phosphorus	3.3 (1.7-5.7)	3.7	3.3
Potassium	23 (7.8-34.8)	26	22
Sulphur	2.2 (0.9-4.3)	2.6	2.3
Sodium	2.3 (0.3-5.3)	3.3	2.6
Magnesium	2.0 (0.7-4.0)	2.1	2.1
Trace elements	(mg/kgDM)	(mg/kgDM)	(mg/kgDM)
Copper	6.6 (2.6-20)	9.2	6.7
Cobalt	0.1 (0.02-0.9)	0.2	0.1
Iron	221 (35-1080)	356	223
Manganese	117 (19.9-304)	112	128
Selenium	0.1 (0.02-0.5)	0.2	0.1
Zinc	31.4 (10.8-244)	37	34
Molybdenum	1.4 (0.2-5.65)	1.2	1.4

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Effect Of N Fertiliser On Mineral Content Of Grass

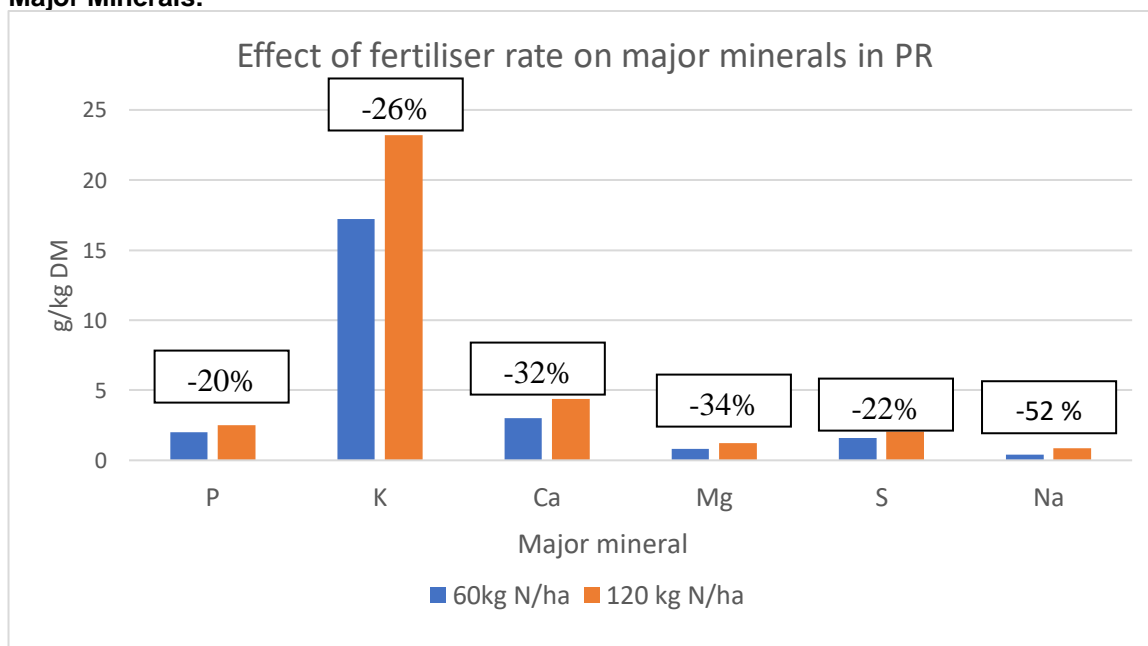
SRUC's Dr. David Lawson reported interesting findings in a trial measuring the effect of nitrogen application and timing on the productivity and quality of a pure perennial ryegrass sward in Aberdeenshire. The data from 2017-2020 shows there is a positive correlation between fertiliser application rate and ryegrass mineral content i.e. as N fertiliser levels increased so did the mineral content. This is contrary to the belief that increasing grass yield would dilute the mineral content of the grass.

It is important to highlight these results are based on a ryegrass sward that does not contain clover or herbal leys. However, this information is particularly important this year where rates of fertiliser application may be reduced, which will not only have implications on the yield and but also the mineral content of the grass.

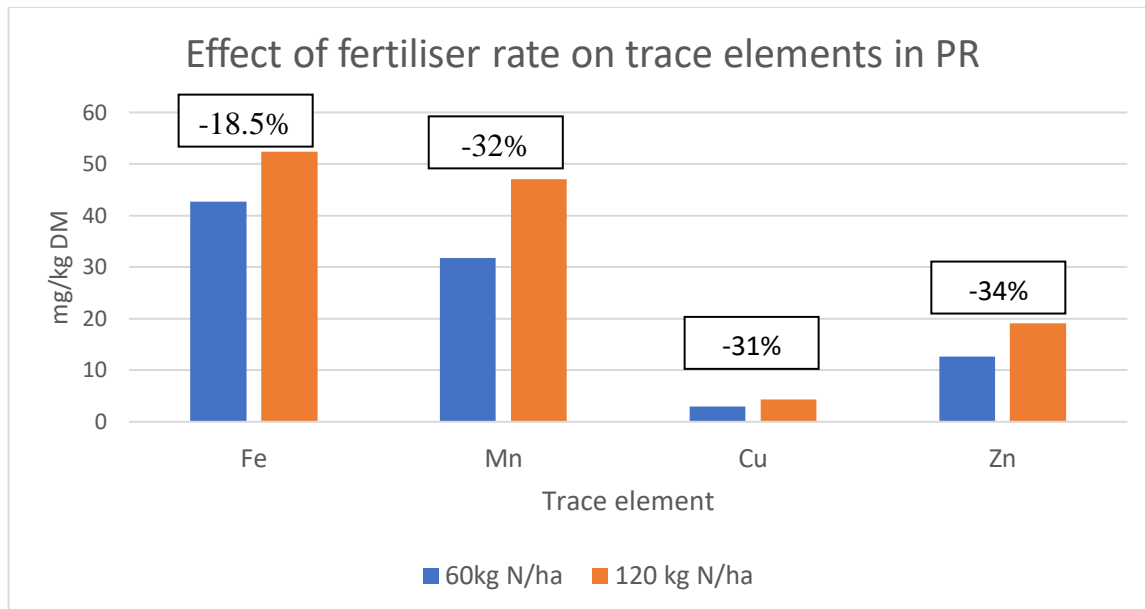
As a valuable source of minerals to livestock it would be advisable, later in the year to analyse grass silage for its mineral content. This will allow for proactive decisions and provision of suitable mineral supplementation to be made if necessary to ensure the animals' requirements for minerals are being met.

The graphs below are compiled from the 2020 data of this trial. The percentages show the % reduction in mineral content when the half rate of 60 kg N/ha are applied compared to the full rate level of 120kg N/ha.

Major Minerals:



Trace elements:



Many thanks to Dr. Lawson and George Fisher for providing these results.

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Mineral, Trace Element And Vitamin Storage

Firstly, there are 3 categories of “minerals”:

Major minerals (found in large amounts): calcium (Ca), phosphorus (P), sodium (Na), potassium (K), sulphur (S) – units of measurement % or g/kg

Trace elements (found in small amounts): copper (Cu), iodine (I), zinc (Zn), cobalt (Co), selenium (Se), manganese (Mn), molybdenum (Mo), iron (Fe) – units of measurement mg/kg which can also be known as parts per million (ppm)

Vitamins: fat soluble: A, D, E and K (stored in the body) and water soluble: C and B complexes (not stored in the body) – units are international units ((iu) or mg

All major minerals are stored in the body in some capacity, for example calcium and phosphorus are mainly stored in bones, iron is stored in the liver, sodium in bones and body fluids. However, some are stored in larger amounts than others and some are more readily available in times of need than others. For example, magnesium is not stored in large amounts and not readily available from bones and muscles in times of need compared to calcium and phosphorus. Interactions between minerals also have an impact on storage and availability, for example calcium metabolism can be affected by phosphorus intake and calcium also relies on vitamin D to help with absorption.

External factors also play a role, for example stress (physically, e.g. bad weather or lack of food and mentally, e.g. fear or change of routine) can cause magnesium to deplete quicker in the body. In addition, low magnesium levels increase stress – vicious circle!

Most trace elements are stored, for example copper and cobalt in the liver and iodine in the thyroid gland, however zinc and manganese are not stored well and are required daily.

Fat soluble vitamins (A, D, E, K) are stored in the body whereas water soluble vitamins are not.

Requirements depend on what the output of the animal is - lactating animals for example will lose more through milk.

Advice is to be aware of risk points to mineral supplies:

- Not supplying minerals daily (through base ration or supplementing) – risk to depletion of all available reserves.
- Higher output animals will be higher risk to deficiency such as lactating and growing/finishing stock compared to a far off calving dry cow.
- Stress i.e. handling, weather, lack of food or water.
- Extreme rations i.e. barley beef, brassicas, high draff.

Oversupply can be as big a problem as undersupplying minerals, for example copper and iodine which are stored well in the body can build up to toxic levels. Carrying out a mineral audit to see how much of each element is supplied from various sources (i.e. background levels in feed, powdered minerals, tubs, boluses etc) can help gauge where issues are occurring.

The only way to be certain animals are getting enough is to blood test them (copper is not an accurate indicator in blood). We can use blood tests as a base point for rationing and adjusting supply of minerals through feed or supplements.

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The Benefits Of Slurry Additives

During storage, slurry separates into three main layers with a layer of sludge at the bottom, a liquid middle layer and a top crust of fibrous material. This difference in consistency of slurry throughout the store affects how easily it can be pumped and handled.

Slurry additives are primarily bacterial inoculants, and some may also contain specific enzymes. The additives are designed to break down organic matter in slurry, helping break up the crust that forms on the top, producing a homogenous, free-flowing product that is easy to pump and spread. To break up or prevent formation of the sludgy bottom layer in the slurry store, additives are likely to be most effective when applied shortly after the store has been emptied and started to be refilled.

The beneficial bacteria (usually of the bacillus strain) produce enzymes that digest fibre particles such as cellulose, releasing soluble nutrients including N, P and K, increasing to the fertiliser value of the slurry. Over time, the slurry will gradually become more liquid and free-flowing which brings some of the many benefits of slurry additives as listed below:

- Reduces the nitrogen lost as ammonia from slurry. Additives can convert the nitrogen in ammonia to microbial protein, meaning that it is not volatilised into the atmosphere but stays in the slurry, adding more nutrients to the soil.
- Lower ammonia levels in buildings, improving the environment for both stock and workers.
- The higher N content of the slurry, reduces the requirement for artificial N fertiliser.
- Reduces blockages in slurry systems and reduces energy required for agitation, pumping and spreading, meaning less fuel and labour costs.
- Less odorous emissions from stores when agitating and spreading treated slurry.
- Lower greenhouse gas emissions.
- Improved soil health and structure due to the addition of soil friendly bacteria.
- Slurry will be washed into the ground easier and result in less residue on grass/crops. On grazing ground, this means improve palatability and less grazing rejection and for silage ground, a more desirable fermentation. However the recommended interval between spreading and cutting still applies based on an uptake of 2.5 kg N/ha/day.

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New Slurry And Silage Regulations

On 1st January 2022, The Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021 will start to come into force. However, within the amendment there are a number of “transitional provisions”. This means that not all the regulations will be applied at once. The main points are summarised below:

1st January 2022

From this date, all producers will need a Risk Assessment for Manure and Slurry (RAMS). This should include a map showing areas that spreading should not take place and the level of risk associated with other areas. This would be in the context of proximity to water features and slope of the ground.

If a new silage or slurry store is to be constructed, or an older store substantially reconstructed or enlarged, SEPA should be notified 30 days prior to the commencement of works. The current rules only ask for SEPA to be informed 28 days before the new store comes into use. Storage of draff or energy crops will also come under the silage regulations.

1st January 2023

Slurry must now be applied using “precision equipment”. This means using a dribble bar, trailing shoe or injector will be necessary. At this point, using a splash plate will not be allowed. Swivelling spout type attachments are not classed as precision equipment. These rules will also apply to contractors.

The splash plate will become a thing of the past



Source: Irish Farmers Journal

However, the amendment allows producers with 200 beef cattle livestock units will be exempt until 2027. One beef livestock unit is any animal over two years of age. Animals younger than two years will count as 0.5 beef livestock units. These exemptions do not extend to rain guns or raised splash plates, the use of which will be prohibited.

1st January 2024

Slurry stores and silage pits built after 1991 must now meet current standards. This generally means that they should be fit for the purpose of containing their contents. Above ground slurry stores must have a lockable, double sluice valve and silage pits should have adequate storage for effluent. Where effluent is collected and pumped to another store, the sump should have an overflow alarm to indicate pump failure. Silage pits with sides other than earth construction must not be filled above the level of the walls (after compaction).

1st January 2026

Slurry stores that were built prior to 1991 must now meet current standards. Units with cattle on a slurry system must now have storage for 22 weeks and those with pigs require 26 weeks of storage. This figure is calculated using the NVZ guidance: manure planning part 1 <https://www.gov.scot/publications/nitrate-vulnerable-zones-guidance-for-farmers/>

1st January 2027

Any exemption from the use of the splash plate will end.

With this legislation being so new, there are still some aspects of it that may require clarification. For further information, refer to the Farming and Water Scotland website:

<https://www.farmingandwaterscotland.org/know-the-rules/new-general-binding-rules-on-silage-and-slurry-whats-changed/>

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Global Warming Facts

1. As the name implies global warming is a global problem.
2. The world population is still increasing. As a consequence the demand for food continues to increase.
3. The last 7 years have been the warmest.
4. The recent COP26 conference set a target of reducing further increases in global temperatures to 1½°C.
5. So extreme climatic events will increase in frequency and severity.
6. Extreme climatic events are having an increasing impact on food supplies. Current reserves of feed grains are described as “wafer thin”. A good example of this is the current drought conditions in Southern Argentina and Brazil where crop conditions were downgraded in just a week.

% Good to Excellent	Soyabean	Maize
23 December 21	71%	76%
30 December 21	56%	58%

(Thanks to Mark Bowsher-Gibbs)

2 weeks later Argentina was completing its wheat harvest, with predictions of much better than average harvest!

7. With extreme climatic events increasing the threat to world feed supplies will intensify with starvation becoming and increasing concern.

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Beef Market Commentary

Prime cattle prices (p/kg dwt) (Source: drawn from AHDB and IAAS data)

Week Ending	E&W			Scotland			E&W		Scotland
	South	North	North	R4L	R4L	-U3L	South	North	All
	R4L	R4L	-U3L	R4L	R4L	-U3L	-U4L	-U4L	-U4L
	Steers	Steers	Y. Bull	Steers	Heifer	Y. Bull	Steers	Steers	Steers
1-Jan-22	412.4	423.7	410.5	414.1	417.0	403.4	416.8	418.4	412.3
8-Jan-22	414.7	421.2	413.7	419.4	415.8	398.5	404.8	415.9	414.1
15-Jan-22	416.8	423.4	413.1	414.9	415.4	401.9	419.2	415.9	413.2

A Good Start to the Year

It was at this time back in 2020 that reports were filtering through of a new and deadly virus affecting China, and who would have predicted the events and restrictions that would follow. While Covid is still part of everyday life, there now seems to be an end to the pandemic (hopefully) in sight with restrictions relaxing and a booster vaccination programme curtailing the severity. Farmers must feel that compared with other businesses across the country that the beef sector will come out the side from Covid in fairly good shape.

Prices south of the border continue to be above Scotch price with some producers questioning the Scotch premium. Tightening stocks in England are likely to be behind the widening price difference. Let’s not forget that Asda’s promise at the time contributed to the past 3 months consecutive prime cattle prices in England being above Scotland. Finishers killed more cattle pre-Christmas, no doubt increasing feed costs

contributed to this, which has in turn meant that store cattle prices have been strong for all types of cattle at the moment as finishers look to restock sheds.

Asda Backtracks

The supermarket made its 100% British commitment only three months ago in October and has already backtracked on this. Supply and price are said to be the reasons behind Asda returning to importing Irish beef so to be able to 'cater' for all consumer budgets. However the days of cheap food are surely gone as farmers are faced with increased input costs including feed, fuel and fertiliser and so consumers will be faced with food price inflation.

Producers Need To Look To The Future

Bull sale season is upon us, producers must look to what the future holds. Taking stock of your enterprise and where you want your cattle business to go will be key in reaching the challenging targets to reduce greenhouse gas emissions by 75% by 2030. Breeding decisions made at these spring bull sales will impact the herd's ability to meet efficiency requirements in 2030.

Those with bulls to sell may well be wondering what the sale will hold with high numbers of cull cows going off farms at the end of last year and throughout January, will there be homes for all these bulls? Time will tell when the gavel falls in the coming weeks.

Confidence in what is an uncertain time will have been boosted however with the announcement that LFASS payments will soon be on their way and are secure until 2024.

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Apologies To Our Readers “Over The Border“!

Occasionally we receive a complaint which we do our best to respond to. The most recent one was from a sheep producer, mainly regarding the benefits of short scrotum castration but with the following footnote – “I know you are the Scottish agricultural bulletin, but as I am sure I am not the only "over the border" subscriber, it seems quite churlish for only the e.g. Scottish map of liver fluke to be published, etc.”

The reason the liver fluke map was only shown for Scotland is that no map, as far as we can find out, exists for the other UK countries. However we have forwarded the query to APHA. If they decide to produce a similar map for England and Wales and send us a copy we will be delighted to put it into a future issue. Meantime we can only apologise for not making this clearer in the original article as the expectation would be that ticks are becoming an increasing problem in other parts of the UK as well as in Scotland.

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Cows Have Two Water Bags!

Uncommon appearance of both water sacs at the same time. It illustrates nicely the difference. The first water sac, known as the allantoic sac is on the right and it bursts during first stage of calving. The second water, known as the amniotic sac, is on the left. This one contains the calf.

Many thanks to Emily Blough and The Visual Guides of Animal Reproduction (visgar.vetmed.ufl.edu) for the image.

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Getting Lube Where It Is Needed

We all know how effective oil is in loosening a tight nut, and the same applies when trying to extract a calf – the more lubrication you can get on the calf before it enters the pelvis, the easier it will come out!

SAC Consulting have produced a short video on using a colostrum tube to get lube past the calf to fully coat it before it enters the pelvic canal. <https://youtu.be/pOxMGxBmZw4>

The following is a five point guide to using the system –

1. Take a clean plastic calf feeder bag.
2. Fill to nearly the top with hand-warm water and pull across the plastic stopper on the tube.
3. Squeeze a bottle of ready-made vet/AI lubricant into the warm water and give it a good shake-up (remembering to close the zip of the bag first!)
4. With a clean gloved hand/arm, cup the end of the feeder tube with your hand and introduce this into the vagina.
5. Once in position release the plastic stopper and using gravity, allow the lubricated fluid to flow over the calf's head, neck and shoulders.

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First Colostrum Has The Highest Ig Concentration

Collecting colostrum from a newly calved beef cow is not much fun! However if you have a squeeze crush and a portable milking unit it is a lot easier and safer. It also allows you to collect clean colostrum uncontaminated with dung etc. So what is the best fraction of colostrum in terms of its Ig content? Interestingly it is the initial milking which has the highest concentration of Ig and the middle part of the milking the lowest level. This can be seen in the results of 2 trials which took samples of colostrum during the first milking session within 1 – 4 hours of calving before the calf had suckled.

Change In Ig Concentration During First Milking (mg/ml)

Stage Sampled	Pre Milking	25%	50%	75%	100%
Trial 1	75	70	71	70	73
Trial 2	86	81			67

1. Godden S. et al The Bovine Pract. 45 1
2. Holstetler D. et al (2003) Int. J. App. Res. 1 2

These results, from dairy cows, clearly shows that the first colostrum contains the most Ig per ml and the rest of the milk has a lower level. The differences may seem small but, across the 2 trials, the initial colostrum contained 6% more Ig/litre than colostrum collected during the middle of milking or the final strippings. This means that feeding a calf 2 litres of the first colostrum would provide the calf with 6% more Ig at the most critical period, when Ig absorption is at its maximum.

What does this mean for beef cows?

1. Ideally the calf should suckle for 10 minutes on each teat to get the highest Ig intake.
2. With the long-term selection for milk yield in cattle, today's cows produce too much colostrum so the calf doesn't need to move on to another teat.
3. If you are collecting colostrum to feed a calf, milk all four quarters and stop when you have got a total of 2 l i.e. 0.5 l per quarter. This is relatively simple using a portable milking machine.
4. If the calf is being fed through a bottle and teat, how much it will drink will be limited by the volume of its abomasum. Hence feeding colostrum with 6% higher Ig content will increase its blood Ig levels accordingly.

P.S. Currently dairy farmers are been advised to feed a bulk sample of all the colostrum collected at the first milking post calving. The reason given is to ensure the calf also receives high levels of the fat

soluble vitamins (A, D, E and K) which are highest in the last colostrum collected i.e. in the strippings. However by far the most important role of colostrum, particularly in the first hours post birth, is to provide the calf with protection against disease via Ig antibodies in it's blood. In the critical hours post birth, the risk of vitamin deficiency is minimal (particularly if during late pregnancy minerals and vitamins supplements were correct). The high level of fat soluble vitamins in the strippings will still be supplied in the colostrum/milk the calf suckles over the following days. In extreme cases, calves can be simply topped up by being given a multivitamin injection.

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Good Fertility In Autumn Calvers

The open autumn last year meant autumn cows were kept outside for longer with more, higher quality grass in front of them. Two effects of this are likely to be –

- Better fertility with cows both in better condition and losing less condition during the early stages of mating.
- Calves being outside for longer will have faced less disease such as scour and pneumonia, giving them a better start to life.

This is likely to result in heavier weights at turnout next spring. If this is already noticeable and you are going to be short of fertiliser for this summer, consider weaning the calves at turnout and grazing the dry grow cows on rough pastures or summer them away on hill ground

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Interpreting Blood Profiles

Analysing blood to determine the metabolic status of animals (i.e. to see how well fed they are) started in sheep in the 1960s. A few years later metabolic profiles started being used for dairy cows and is now, increasingly common practice. In the 1990s it started being used in beef cows and as spring calving became more common, for dry cows prior to calving.

However there are major differences between dairy and beef cows, in the way they are managed and particularly in how they are fed. Dairy cows are fed several times a day so that they are never without feed and can “top up “whenever they want to. In comparison, beef cows are normally fed once a day, with possibly a late afternoon “top up“ of straw to keep them quiet overnight!

This difference in feeding pattern has a big impact on blood levels of nutritional markers over 24 hours. This was clearly shown in work undertaken with 22 autumn calving, blue grey cows, machine milked twice daily, in an experiment investigating the effect of level of feeding on milk yield and composition. The cows were split into three groups and fed either 90%, 125% or 175% of their maintenance requirement based on their liveweight post calving. (Coggins & Field 1976, J. Agric. Sci., Camb. 86 595 – 602.

Around 2 months after calving they were blood sampled once daily at 5 different times of day – 9 am, 3 pm ,5 pm,7 pm and 10 pm. All cows were fed 5 kg of silage at 7 am and the main part of their ration at 1:30 pm.

Results

Time of feeding had a significant effect on all measures of metabolism except for total protein, globulin and magnesium. The results clearly show that for glucose, free fatty acids, ketone bodies and urea, diurnal variation is of greater importance than the variation resulting from a 76% difference in their DM intake and a 71% difference in energy status! Most of the diurnal variation was associated with feeding.

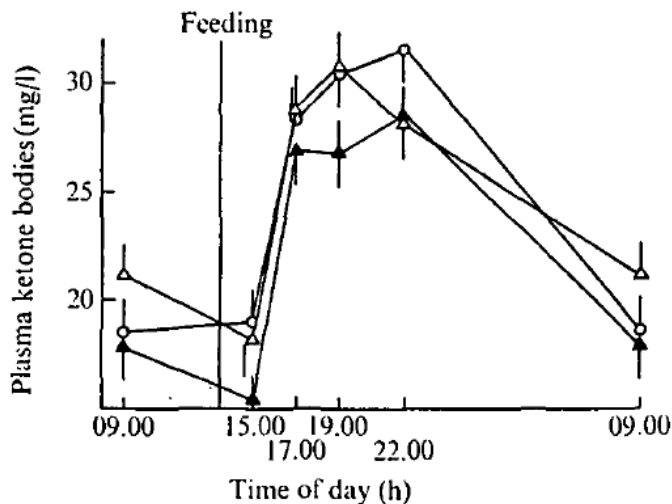


Fig. 3. Least-squares mean values (\pm s.e.) of plasma ketone body concentrations in three groups of lactating beef cows at five times during the day. Δ — Δ , Group L; \blacktriangle — \blacktriangle , group M; \circ — \circ , group H.

The graph shows a rapid rise in ketone bodies immediately after feeding which the researchers thought was due to the conversion of silage butyrate.

The absence of differences in blood measurements for energy until approximately 20 hours after the main feed of silage and barley was offered, researchers suggested, was due to the rate at which the silage was eaten. All groups would have had feed in front of them for several hours after it was offered. This meant that for a significant amount of time after feeding animals would be in positive energy balance with respect to those nutrients which are rapidly absorbed from the rumen. Group differences in blood chemistry only developed when the absorption of these products was less than the animals' required.

Researchers concluded that variation in time of feeding and feeding systems would have a significant effect on blood constituents and would be a major source of error when comparing between farms. Taking into account the time of feeding and composition of the diet would be essential to accurately interpret the results.

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The Mathematics Of Fertility – Conception Rates

Conception rate measures the number of cows who conceive i.e. become pregnant after been served. For example, with a conception rate of 50% half of the cows who are served will become pregnant. The other half will return in season over the following 3 weeks. The following table shows the affect conception rate has on –

- The number of cows who become pregnant in each of the three week cycles during the mating period and
- How many cows will not conceive and will come back in season three weeks later.

The assumptions I have made are –

- All cows are cycling when mating starts. This is unlikely to occur in herds with calving periods longer than 6 weeks. However it should be true for all groups of maiden heifers.
- A 9 week calving period.
- A herd size of 100 cows so the figures are percentages

Effect Of Conception Rate On Number Of Cows Conceiving In Each 3 Week Mating Cycle And Returning To Be Served In The Next Mating Cycle

Conception Rate (%)	1 st Mating Cycle		2 nd Mating Cycle		3 rd Mating Cycle	
	Pregnant	Returning	Pregnant	Returning	Pregnant	Returning
90	90	10	9	1	1	0
80	80	20	16	4	3	1
70	70	30	21	9	6	3
60	60	40	24	16	10	6
50	50	50	25	25	13	12
40	40	60	24	36	14	22

The calculations show that with a conception rate of 90%, 90% of the herd will calve in the first 3 weeks of the calving period. Only 10 cows will fail to hold to service and will return to be mated in the second, 3 week mating cycle. In comparison at a conception rate of 60%. There will be 40% of the herd returning to be served in the second cycle.

The final column shows how many cows would be barren if the herd was mated for just 9 weeks.

Another interesting fact is the effect low conception rates have on how hard bulls have to work i.e. how many times they have to serve cows. As an example we can compare 80 v 50% conception rates.

Conception Rate (%)	Number Cows Served In			
	1 st Cycle	2 nd Cycle	3 rd Cycle	Total
80	100	10	1	111
50	100	50	25	175

The figures show 58% more services occur with the 50% conception rate can still result in 11% more barren cows.

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Importance Of Sperm Morphology

Bull breeding soundness evaluations (BBSE) are commonly undertaken by farm vets, to help identify which bulls are unfit for use as breeding sires, and thus to avoid poor herd reproductive performance. Various studies worldwide have found that approximately 20% of the bulls fail their routine pre-breeding BBSE and are therefore considered subfertile¹. In the BBSE, minimum standards include > 70% morphologically normal sperm and < 20% sperm with head defects². Few male animals are truly infertile; however, it is accepted that approximately 20 to 40% of bulls examined as part of routine screening fail their BBSE and are therefore considered subfertile³.

In 2020 I undertook over 300 BBSE whilst working in as a farm vet in private practice in South East Scotland and North Northumberland. All BBSEs were performed following British Cattle Veterinary Association guidelines⁴. All results including the initial physical examination findings, semen evaluation including gross motility scores, progressive motility percentages, semen morphology counts and the final classification regarding suitability for breeding have been reviewed. The results reveal some interesting findings.

Results for 2020 (n=310) from 8 different beef breeds on 26 different units, revealed –

- An overall classification as **suitable for breeding** in **84.5%** (n=262) of bulls examined. The average percentage of morphologically normal sperm in these bulls was 83.6%.
- **15.5%** (n=48) were classified as **unsuitable for breeding**, with the average percentage of morphologically normal sperm in these bulls was at 45.0%.

This highlights the importance of the final stage of the BBSE which is the counting of 100 sperm on the stained slide under the microscope. This is most often performed in the practice away from the farm but is a hugely important aspect of the overall examination. Remember that some sperm will have defects that affect fertilisation (e.g., sperm head defects). These defective sperm can swim normally, will fuse with the cow's eggs in the oviduct but won't then proceed to be a functioning pregnancy. Without the morphology slide, these defective sperm can be missed, and sub fertile bulls may be misclassified as suitable for breeding.

References

¹Tomlinson, M; et al (2017) *Theriogenology*, **89**:169-177

² Barth, A.D; Oko, R.J (1989) Ames, Iowa: *Iowa State University Press*, 130-279

³ Parkinson, T.J (2004) *The Veterinary Journal*, **168**:215-229

⁴ Penny, C.D (2010) *The Veterinary Record*, **167**: 551-554

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Importance Of Quarantining Stock Bulls

There are several reasons why it is critical to correctly quarantine newly purchased stock bulls –

- On many farms these will be the only bought in stock.
- Soon after arrival they will be having intimate contact with a large number of cows e.g. grooming them, serving them, etc.
- At the same time they will be running with a large number of young calves with relatively low levels of immunity to disease.

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Points To Ponder –Housed Cattle

1. No rain falls on them, so their coats stay dry.
2. No wind chill.
3. No frost (similar to trees preventing frost underneath them).
4. Continual heat produced underneath them from the FYM.

Conclusion

Check the coats of your cattle. If they have grown in again, after having been clipped at housing last autumn, consider clipping them again now.

What I would really like is for someone to clip every other beast through the race and monitor their performance over the rest of the winter! It would be good to do it with finishing cattle and see how much effect it has on how much they eat and hence how quickly they finish over the rest of the winter?

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Liveweight Change In Pregnant Cows

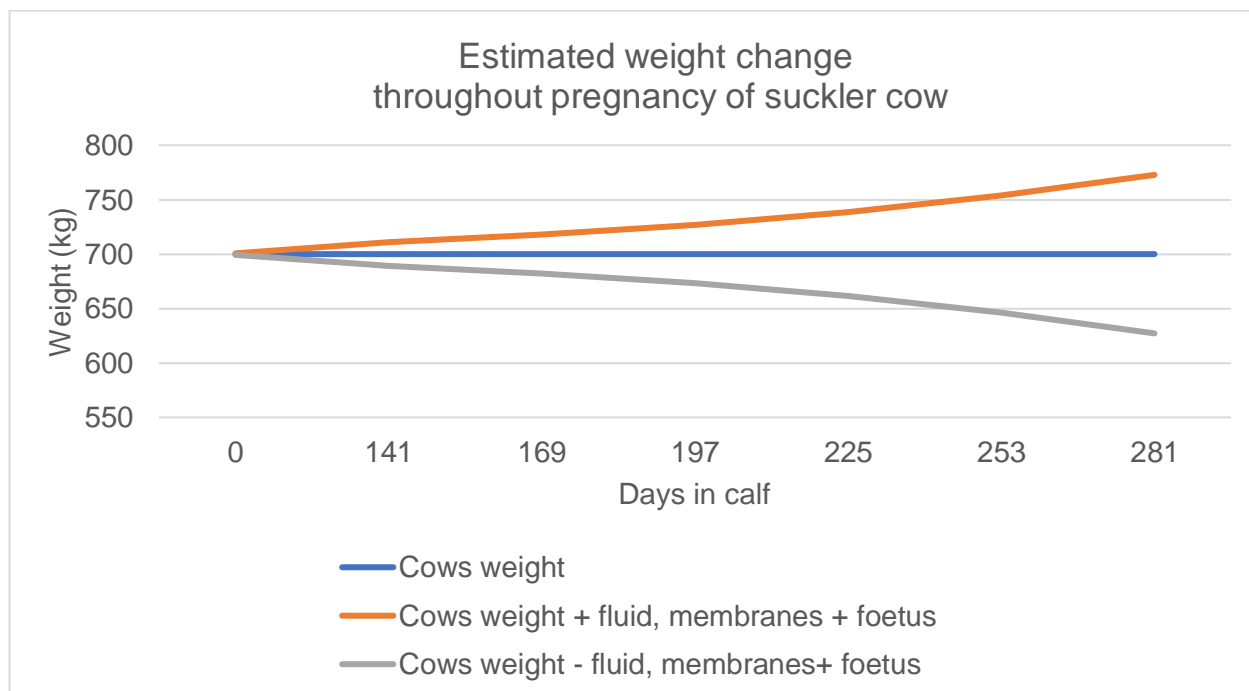
Rationing sucklers requires 3 key pieces of information – liveweight, condition score and expected date of calving. Liveweight is most accurately measured using a set of weigh scales. However, something that isn't generally considered is what makes up a pregnant cows liveweight i.e. what is the cow herself and what is made up of the pregnancy components (foetus, membranes and fluids).

The graph below was produced using the AFRC energy and protein requirements of ruminants 1993.

- The blue line represents a 700 kg non-pregnant cow fed a maintenance diet to just maintain her weight.
- The orange line shows the liveweight of a cow as pregnancy advances including the products of conception i.e. the calf, membranes and fluids.
- The grey line represents the liveweight of the cow if she is fed to maintain her weight including the calf inside her, throughout pregnancy.

In the last 8 weeks pre-calving (around 225 days in calf) her energy requirement starts to increase exponentially. At this point in pregnancy, the weight of the foetus, fluid and membranes is also increasing rapidly. Between 225 – 281 days in calf she gains just over 30kg!

On a flat rate feeding system we ration around the 8 week pre-calving time. This results in slightly over feeding further off calving, however it evens out as the cow gets closer to calving and is slightly underfed. This graph further supports the message of avoiding starvation diets in late calving.



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Possible Store Cattle Sale Declaration

One of the challenges when buying store cattle is not having any background information on that animal other than its age, breed, sex, weight and farm assurance status. There are rarely any details at the point of sale around its health/vaccination status or any details of its sire and the EBVs associated with him that may be of use to finishers.

Lack of communication between the breeder and finisher is often cited as one of the reasons for inefficiency in the beef production system, with finishers potentially vaccinating cattle as they arrive on farm with no knowledge of whether those animals have already had any vaccinations.

One way to move forward with this would be to supply buyers and potential buyers of store cattle with detailed store declarations.

The declaration is split into 2 components –

1. The simplest information possible displayed on boards attached to the pens.
2. A sheet of paper giving more detailed information of benefit to the buyer. The seller would hand these out to interested buyers or alternatively attach to cattle passports.

Paper Declaration

This would be filled in by the seller, and copies made available to potential buyers prior to the sale or online. Having purchased the stock, the buyer would then be able to refer to the exact details on the animals health status while maximising the health of the animal through to slaughter. An example is given below.

STORE SALE DECLARATION

Lot Nos

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Name of Sire

AHDB National Beef Evaluations	
Carcase EBV	
Carcase weight (kg)	
Carcase Conformation (EUROP)	
Carcase fat class (EUROP)	
Days to slaughter (days)	
Average daily carcass gain (kg)	

Herd Accredited

Stores from herd tested and accredited free of

BVD	Yes	<input style="width: 90%;" type="text"/>
IBR	Yes	<input style="width: 90%;" type="text"/>
Frequency TB test		years <input style="width: 10%;" type="text"/>

Vaccination

Against respiratory disease	Yes	<input style="width: 90%;" type="text"/>
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Vaccine Name

Dates Vaccinated

	1 st Dose	2 nd Booster
	/ /	/ /

Against Clostridial disease	Yes	<input style="width: 90%;" type="text"/>
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Vaccine Name

Dates Vaccinated

	1 st Dose	2 nd Booster
	/ /	/ /

Wormed	Yes	<input style="width: 90%;" type="text"/>
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Wormer Name	Date Wormed
	/ /

Fluked	Yes	<input style="width: 90%;" type="text"/>
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Product Name	Date Treated
	/ /

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