

LKL Newsletter November 2020



Editor: George Gordon Layout: Amanda Hargrave

EX LKL SUB-CONTRACTOR JON PROCTOR LEADS THE FIGHT AGAINST MEDINA IN COURT, AND WINS!

Jon Proctor managed herds very successfully for LKL over a number of years before taking on a Hampshire County Council farm 4 years ago. Since dairy farming on his own he has become chairman of Meadow Milk. He led the recent court case against Medina on behalf of 16 supplying farmers. Due to Medina breaking its contract terms, the farmers wished to leave after 3 month's notice instead of 12 months, but Medina sought to prevent them leaving with their 27 million litres of milk. Medina were represented by the big legal guns at Burgess Salmon and could easily have overwhelmed the resources of a few farmers. However, Minette Batters of the NFU decided to throw her weight behind the fight as part of the NFU drive for milk contract reform. The judge said that to force farmers to sell to Medina for a further 9 months was a restriction of trade and awarded costs of @ £200,000 against Medina. This is a ground breaking judgement and will force milk buyers to exercise caution when going outside contractual commitments with their supplying farmers. Jon deserves full credit for this win from everyone in dairy farming. It was a pleasure to work with Jon over many years, he's always been a hardworking, talented and determined herd manager and is applying his skills as tenaciously as ever. We also need to say a 'thank you' to Minette Batters at the NFU for having the courage to back the case.

ARLA UP 0.9 TO 30.66PPL

From 1 November Arla announced a further 0.9ppl increase taking manufacturing to 30.66ppl and Organic Members to 39.02ppl. Arla have been the market leaders now for a long time and this latest rise will be hard for liquid sector buyers to match.



SETTLED STATUS REMINDER!

Please remember that Settled Status and Pre Settled Status need to be obtained for people who are working in the UK but originated from elsewhere in the EU. It is a straightforward task that LKL can help with. Ask your LKL Regional Manager and we will organise it with you.

RABI WELL-BEING SERVICE

A new online service has been launched by the Royal Agricultural Benevolent Institution (RABI) to offer community support, professional support and self-help content to promote positive mental health. Farmers can also access free one-to-one counselling support



RABDF PODCAST ON TACKLING LABOUR ISSUES

I was recently asked to do a podcast by the RABDF on tackling labour issues on dairy farms. To hear the podcast go to the link.



<https://rabdf.podbean.com/e/tackling-the-labour-issues-on-dairy-farms/>

George Gordon

NZ FONTERRA'S INCREASE AFTER STRONG DEMAND FROM CHINA TO OVER 26PPL

Fonterra increased its forecast from NZ \$6.40 per kg milk solids to NZ \$6.80 (24.8 → 26.3ppl approximate equivalent).



Contents

- News 2
- League Table & National Costings Insert
- News 3
- Noticeboard 4



NEWS

PRICES

**MULLER COOP TO
29.69PPL**

**TESCO DOWN 0.56PPL
TO 30.7PPL**

**FIRST MILK +0.5PPL TO
27.75PPL**

**1PPL MILK PRICE
INCREASE TO MEDINA
TO 26.93PPL**

**1PPL MILK PRICE
INCREASE TO MEADOW
FOODS TO 27PPL**

**MULLER + 1PPL TO
27.25PPL**

Muller will increase price to its Direct suppliers by 1ppl from 20 November to 27.25ppl. This includes the 1ppl Muller Direct Premium based on involvement in herd health initiatives including ending the practice of euthanising healthy bull calves.

ARLA WARNS PUBLIC OF HIGHER PRICES IN SHOPS FOR DAIRY PRODUCTS

Ash Amirahmadi, the MD of Arla UK, has warned of higher food prices post Brexit. He points out that no deal chaos, Covid

disruption and Christmas demand may drive up prices.

**HIGH
PRICE**

Tariffs from a no deal Brexit could arise if a free trade deal with the EU cannot be negotiated. 35% of yoghurt, 40% of butter and 67% of cheese consumed in the UK is imported. Demand for Arla brands like Cravendale, Anchor and Lurpak butter has jumped in 2020.

DAIRY WORKERS REFUSED SHORTAGE OCCUPATION STATUS

The Royal Association of British Dairy Farmers (RABDF) has warned of labour shortages after the Migration Advisory Committee (MAC) rejected its calls to add dairy workers to the shortage occupation list (SOL).

A survey in 2016 by RABDF found more than half of respondents employed staff from outside the UK; a 24% increase on 2014. Two-thirds said this was due to insufficient UK staff being available. The MAC did recommend butchers, butcher's assistants, butchery managers, meat cutters and slaughtermen be added to the SOL. MAC also recommended other key food chain roles such as food technologists and maintenance engineers be added to the SOL. The Food and Drink Federation said the Government must remove the Immigration Skills Charge for shortage roles as well as cutting visa fees and salary thresholds.



COSTS DEFINE PROFITABILITY

The Milk Cost of Production Report 2020, by Old Mill and the Farm Consultancy Group, found there remained a big gap between the top and bottom producers, with the top 10% averaging a profit of 12ppl compared with a loss of 5.48ppl for the bottom 10%. Twenty-four percent were not breaking even. Old Mill rural accountant Dean Heal said neither milk price, system or herd size were the defining factor in success. The drive to make a profit and cost reductions were vital. Wins included looking at the cost of running the parlour, bedding costs and more proactive veterinary treatments, as well as culling low performers.

ARLA'S COW MANURE- POWERED TRANSPORT

A three-month trial will see Arla use manure from 500 cows to create biofuel to power two of its tankers to reduce the processor's carbon impact by 80 tonnes.

DAIRY DISAPPEARING FROM NORTH EAST SCOTLAND

Aberdeenshire farmers are exiting the dairy industry due to little demand for their milk. Fourteen dairy farmers were handed their notice last October following a review by Muller. Their only option had been Yew Tree dairy in north west England, with a 4ppl haulage charge.



MPS REJECT PROTECTION OF UK FOOD STANDARDS

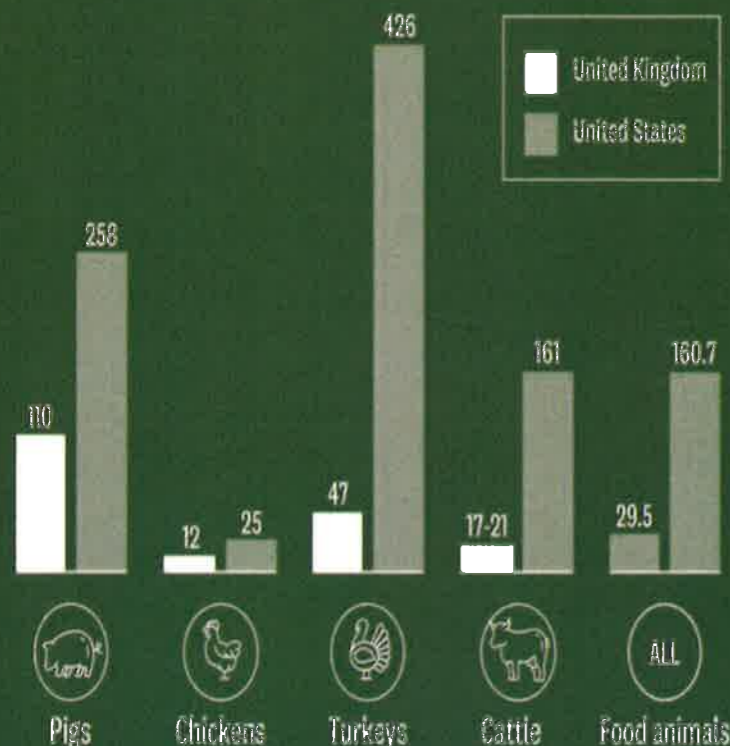
The House of Commons saw MPs reject a proposed ban on low-standard food imports. During a debate on the Agriculture Bill, an amendment put forward by Labour peer Lord Grantchester which would have forced imports to meet UK domestic standards was defeated by 328 votes to 277. Industry bodies have said they will continue to ensure standards are protected. NFU president Minette Batters said: "The future of British food and farming is at stake". 14 Conservative MPs rebelled against the Government over the Agriculture Bill amendment, including Theresa Villiers, Environment, Food and Rural Affairs Select Committee chairman Neil Parish and Scottish Conservative leader Douglas Ross. Mr Ross said: "As a former farmworker myself, I chose to support this additional wording to provide a firm, definitive assurance to every farmer across Scotland and the UK." Other Tory MPs chose to abstain. There were 21 Conservative MPs who did not record a vote.



NEWS

Antibiotic use: UK vs US

Estimates of antibiotic use in the UK and the US in mg of antibiotic per kg of animal



In recent years the UK has more than halved its use of antibiotics and is now producing food with levels well below the US or EU. Antibiotic use in the US is about five times the level it is in the UK. Cleaning and mucking out procedures are far less than in the UK and higher stocking densities are permitted, however MPs recently voted that food can be imported at lower welfare standards than are acceptable in the UK. There were some notable rebels who went against the Government to try and stop this. One who did not is the Chair of the Red Tractor Assurance Scheme, Baroness Lucy Neville-Rolfe! What does she really think of the assurance standard organisation she heads up? There have been numerous calls for her resignation in the light of her vote and she has now announced she will be stepping down from the Red Tractor job.

FONTERRA TO OFFLOAD CHINESE FARMS

NZ co-operative Fonterra is to sell its three farms in China for £283m to two Chinese companies. The farms in China were not performing well financially.



RABOBANK PREDICT A STEADY 2021

Rabobank's latest price projections are flat through to 2021, putting farmgate milk prices in the 27ppl to 28ppl range for commodity priced milk contracts.

FRENCH DO A PART BAN ON ROUNDUP

The French Government announced a partial ban from 1 January 2021, but with some exceptions for steep or stony ground where no alternatives exist.



VACCINATING COWS AGAINST BVD WORTH 1 LITRE/DAY

A global study on 1,463 cows showed cows vaccinated against BVD gave 1 litre/day extra milk on average. Yield differentials were observed in early and mid lactation.



CRUSHED BY FORKLIFT

A young worker has been crushed between a forklift truck and a wall at a farm in East Anglia.



PEOPLE CELEBRATING SPECIAL BIRTHDAYS!

Nathan Down, Petru Marius Stiop, Nandor Szaszka, Dumitru-Andrei Drughi



WELCOME TO:

FARMERS T Sedgewick & Sons, JD & HM Thomas



If I get accused of gaslighting one more time I'm gonna **look** it up.

A priest, a minister and a rabbit walk into a bar. The rabbit says, 'I think I'm a typo.'

Me: Can I have a turn in the hedge now?
Hedgehog: No



What do you call a guy who's had too much to drink?
A cab.

This pandemic really reminds me of being at secondary school. I keep hearing there's lots of house parties going on but I haven't been invited to any of them.

A mummy covered in chocolate and nuts has been discovered in Egypt. Archaeologists believe it may be Pharaoh Roche.....



Dude 1: Hey bro
Dude 2: Yeah bro?
Dude 1: Can you pass me that pamphlet?
Dude 2: Brochure

The absolute worst spelled word in English is 'queue'. Q was just killing it on his own and then someone thought, what if he had 4 extra useless teammates.

LKL Services Ltd
Agriculture House / Unit C
Old Sarum Park
Salisbury
Wiltshire SP4 6EB
Phone: 01722 323546
Fax: 01722 335350
amanda.hargrave@lkl-services.co.uk
george.gordon@lkl-services.co.uk





ANNUAL ROLLING RESULTS		All breeds All systems Herds																	Ranked by:		Margin Over Purchased Feed per Cow	
	Average	WOO1	HEA1	PIC1	Double	BOM3	WR11	STA2	TUP1	BUT6	JEA1	SAL1	LOT2	IVE1	CHE1	Saund	ROT1	LAM1	RE1	STE2	MER3	
		Jul 20	Sep 20	Aug 20	Aug 20	Aug 20	Sep 20	Jul 20	Aug 20	Sep 20	Aug 20	Sep 20	Aug 20	Aug 20	Sep 20	Sep 20	Sep 20	Aug 20	Sep 20	Sep 20	Aug 20	
Latest Recording																						
Cows in herd	261	224	511	275	230	242	463	382	143	264	167	182	264	244	421	297	194	169	165	339	183	
MILK PRODUCTION																						
Yield (ltrs/cow)	8996	11969	11836	11157	10788	10353	11561	7901	8436	9751	9218	7901	10027	12245	9019	6538	9942	12111	7149	6965	7370	
Yield from all forage (ltrs/cow)	2895	3355	1379	4434	2966	2681	1706	3951	3748	3615	3943	4144	1938	4433	2280	3185	3970	3025	2520	3452	2365	
% of total yield from forage	34%	28%	12%	40%	27%	26%	15%	50%	44%	37%	43%	52%	19%	36%	25%	49%	40%	25%	35%	50%	32%	
Butterfat (%)	4.06	3.94	3.86	3.96	3.95	3.96	3.85	4.23	4.18	3.89	3.92	4.57	3.95	3.68	3.81	4.21	3.88	3.71	3.88	4.47	4.08	
Protein (%)	3.35	3.25	3.31	3.29	3.33	3.35	3.31	3.42	3.41	3.27	3.31	3.49	3.26	3.21	3.16	3.53	3.32	3.19	3.24	3.78	3.32	
Hygiene	21	6	28	22	15	23	31	17	15	11	18	14	13	23	28	37	12	13	14	36	14	
Cell Count	156	82	183	196	98	110	137	181	173	159	78	143	166	170	215	178	107	134	195	130	237	
Bactoscan / Cell Count Index	58	88	45	49	76	65	51	56	61	67	76	68	64	53	39	38	76	70	57	48	49	
Milk Price (pence)	30.10	30.67	30.58	28.58	29.60	30.57	29.52	33.20	32.96	29.89	29.48	32.06	29.86	24.47	30.05	40.60	26.12	24.56	39.26	32.84	38.40	
FEED																						
Concentrate use per cow (kg)	2620	2709	4205	3202	2746	3547	3595	1992	2477	3122	2603	1905	3650	3393	2944	1708	2278	3406	2233	1943	2444	
Concentrate use (kg/ltr)	0.29	0.23	0.36	0.29	0.25	0.34	0.31	0.25	0.29	0.32	0.28	0.24	0.36	0.28	0.33	0.26	0.23	0.28	0.31	0.28	0.33	
Concentrate price per tonne (£)	239	201	248	228	221	195	212	210	216	203	232	200	225	206	205	386	206	212	393	203	375	
Other purch feed cost per cow (£)	109	461	150	70	207	108	319	5	12	128	0	47	85	215	80	0	188	322	0	0	5	
All purchased feed cost (p/ltr)	7.99	8.41	10.08	7.18	7.53	7.73	9.36	5.37	6.49	7.82	6.55	5.41	9.05	7.46	7.58	10.08	6.61	8.63	12.29	5.66	12.50	
MARGINS																						
MOPF per cow (£)	1939	2665	2427	2383	2380	2359	2330	2189	2171	2152	2114	2105	2087	2084	2027	1994	1940	1929	1928	1893	1871	
MOPF per Litre (p)	22.12	22.26	20.50	21.40	22.06	22.84	20.16	27.83	26.47	22.07	22.93	26.65	20.82	17.02	22.47	30.51	19.51	15.93	26.97	27.18	25.90	
FORAGE																						
Stocking rate (cows/ha)	2.34	2.02		2.10	2.55		5.72	2.03	1.78	1.90		1.93	4.06	1.63	2.68		1.86	1.71				
Milk from forage (ltrs/ha)	6725	6784		9324	7564		9749	8020	6684	6877		8006	7870	7207	6117		7372	5173				
MOPF per hectare (£)	4693	5389		5011	6070		13320	4443	3871	4093		4067	8474	3387	5437		3603	3299				

Kingshay can accept no responsibility for the information supplied to it. Every care will be taken by Kingshay to produce an accurate report but it does not accept any liability for any loss (whether direct or consequential) arising from any defect in the report.



LKL Services Herds

Holstein/Friesian, Conventional Herds (matched herds)		Year Ending September 2019	Year Ending September 2020	Change	% Diff
Cows in herd		263	270	7	3%
Cow calvings		190	192	2	1%
Heifer calvings		79	90	11	14%
Stocking rate	cows/ha	2.30	2.28	-0.02	-1%
MILK PRODUCTION					
Milk Production	litres	2,447,478	2,529,090	81,612	3%
Yield per cow	litres	9,306	9,367	61	1%
Yield from all forage per cow	litres	2,529	2,659	130	5%
% of total yield from forage		27%	28%	1%	4%
Butterfat	%	4.01	4.07	0.06	1%
Protein	%	3.33	3.35	0.02	1%
Bactoscan		21	22	1	5%
Cellcount		150	153	3	2%
Milk Price	pence	29.50	28.37	-1.13	-4%
Total milk value per cow	£	2,745	2,657	-88	-3%
FEED					
Total concentrate use	tonnes	750	769	19	3%
Concentrate use per cow	kg	2,851	2,849	-2	0%
Concentrate use per litre	kg	0.31	0.30	-0.01	-3%
Concentrate price per tonne	£	223	214	-9	-4%
Other purchased feed cost per cow	£	124	124	0	0%
All purchased feed cost per cow	£	760	734	-26	-3%
All purchased feed cost per litre	pence	8.17	7.84	-0.33	-4%
All P.Feed @ 86% DM equivalent per cow	kg	3,345	3,330	-15	0%
MARGINS					
MOPF per herd	£	522,055	519,210	-2,845	-1%
MOPF per cow	£	1,985	1,923	-62	-3%
MOPF per litre	pence	21.33	20.53	-0.80	-4%

Kingshay can accept no responsibility for the information supplied to it. Every care will be taken by Kingshay to produce an accurate report but it does not accept any liability for any loss (whether direct or consequential) arising from any defect in the report.

Printed: 22/10/2020



LKL League Table — September 2020 milk production, inclusion for herds with an MOPF per cow (£) over 1,871.

CONGRATULATIONS TO THIS MONTH'S WINNER:



Geraint Bateman
@ Hook Farm Partnership

(Wins £20 voucher)



Technical Note

BEWARE OF HIGH COPPER LEVELS IN DIETS

Copper is an important trace element within dairy diets. Copper deficiency tends to result when a diet of forage or feed contains high sulphur and molybdenum. Molybdenum and sulphur are copper antagonists which lock up copper. Copper that has not been locked up is absorbed through the small intestine and transported to the liver.

Expect deficiency to occur when liver copper is about 19mg/kg dry matter (DM). Concentrations of more than 508mg/kg DM become excessive. Overfeeding of copper is present on most dairy farms because copper comes from several feed sources.

Harper Adams has carried out research on copper looking at 80 heifers. Split into two groups, the control group was supplemented with textbook recommendations for copper of 15mg/kg DM. Feeding more than adequate copper had no effect on the liveweight throughout the rearing period. Animals on the high dietary copper concentration made a higher daily liveweight gain and had a higher increase in body condition score. The high copper group came into puberty sooner.

However, the picture began to change when they started to look at conception rates. Pregnancy rate to first and second service was 96.9% in the control group but it was only 75% for the heifers in the high copper group. It may result from hepatic copper interfering with hormones synthesised in the liver. Concentrates tend to have copper concentrations well in excess of requirements. Heifers on the high copper diet calved at a higher BCS. This resulted in a greater loss of BCS in the first 14 weeks of lactation. There was a lower milk, lactose and protein yield for heifers on the high copper treatment, despite reserves. The high copper treatment group also appeared to be under increased metabolic stress.

The study suggests feeding heifers high concentrations of dietary copper has the potential to reduce conception rates and milk yields.

Technical Note ... Continued

**THREE-BREED CROSS BEATS PURE BREED IN US
RESEARCH**

A 10-year project from the University of Minnesota found a three-breed cross of Holstein Montbeliarde and Viking Red were more fertile without any compromise to milk production in comparison to the pure Holstein.

The study investigated the ProCross (three-way-cross) compared with those following pure Holstein breeding. Semen from proven bulls was used and matings were protected against inbreeding. The three-breed cross-breeds were found to have higher (+9% to 10%) first service conception rates, lower ages at first, second and third calving and fewer (-16.5) days open over three lactations. Cross-bred animals were more fertile than pure-breeds. A compromise in production may be expected, but this is not the case. Fat plus protein production (kg) in their first three lactations was 3-4% lower than the Holstein in the three-breed cross. When converted to a lifetime daily yield of fat plus protein, the ProCross produced more than Holsteins.

BULLS FERTILITY

Studies have consistently shown that between 20 to 25% of bulls are sub-fertile or infertile. Infertility is rare but sub-fertility is far more common.

These bulls serve cows, but they are unable to achieve a conception rate expected of a fertile bull. Poor fertility, poor conception or a spread-out block calving pattern are all outcomes of using a sub-fertile bull.

Sub-fertile bulls typically achieve a 40% conception rate, whereas a fertile bull will achieve at least 60%.

A bull breeding soundness evaluation can only be carried out by someone who holds a veterinary licence. The test looks at the motility (ability to swim) of the sperm and the morphology (shape) of the sperm.



Be strategic with your autumn grazing

After an exceptionally dry summer for parts of the UK, many farms are looking to conserve forage stocks as they head into the winter. **One way of doing this is to keep cows at grass for longer in the autumn.** The question is how this can be done without storing up problems for later.

Over the past couple of months, we have received an increasing number of blood samples from cows on autumn grazing and the results have been quite telling. **A significant proportion of the early lactation cows on autumn grazing have evidence of excessive negative energy balance.** Some of the results have been extreme and we have been surprised by the number of cows with butyrate results that are indicative of clinical ketosis (over 3.0 mmol/l). These cows are the tip of the iceberg and represent an early lactation group that are struggling to achieve satisfactory intakes of grazed grass, with knock on effects **of excessive body condition loss, poor fertility and reduced milk yields throughout the winter.**

Whilst the autumn flush of grass can look plentiful, dry matter content is highly variable. This was illustrated by the last Grass Check report for 2020 (<https://grasscheckgb.co.uk/>), which showed October grass dry matter content ranging from 13 to 23%. **That's nearly a two-fold range in autumn grazing dry matter!** Measuring grass dry matter is relatively easy to do using a

set of scales, a cup of water and a microwave – and is a useful tool for helping to decide when to house high yielding cows in early lactation.

As dry matter content drops, there is often little option other than to completely house early lactation cows. However, there is more flexibility when thinking about what to do with the mid-lactation cows. Severe negative energy balance is generally less common in mid-lactation cows and whilst we have seen plenty of mid-lactation cows on autumn grazing with evidence of excessive body fat mobilisation, the blood test results have not been as extreme as those cows in early lactation. For cows that are in good body condition and in calf, this is good news, as it offers the prospect of keeping these cows out at grass for longer. **Some controlled body condition loss at this stage of production can be tolerated to preserve winter forage stocks, provided that the cows are not allowed to drop below body condition score 2.5 (on a scale of 1-5).** Regular monitoring of body condition is necessary and cows should be housed once they reach body condition 2.5.

Of course, there are other ways that forage stocks can be preserved, with farms altering their culling decisions or keeping far off dry cows and youngstock at grass for longer. **If you are feeding straw in the transition ration and have far off dry cows at grass, remember that straw should be fed for six weeks prior to calving to avoid a drop in intakes as cows move onto the transition diet.**

For farms with access to by-products such as brewers' grains, then getting regular deliveries in place now to protect forage stocks is often more cost effective than paying over the odds to buy large quantities in late winter when stocks are low. Advanced planning now could avoid additional stress for both you and the cows in 2021! Once the cows are settled on their winter rations, then a metabolic profile can be useful to spot and address any nutritional issues early on.



Treatment of clinical mastitis cases

Given the current issues surrounding the (lack of) availability of most of the intramammary antibiotic tubes used to treat clinical mastitis, it is worth considering what factors are likely to be important in treatment success rates. Clinical mastitis cure rates during lactation are often quoted as being around 30 – 50% in the UK. Research has shown that a number of factors are likely to affect cure rates following treatment for clinical mastitis (i.e. clots in the milk, sick cows), including the type of bacteria present and individual cow cell count. Bacteria such as *Staph. aureus* and *Strep. uberis* tend to have poorer treatment success rates, hence the importance of identifying the main causes of mastitis.

How long the infection has been present within the udder is also a major determinant of successful treatment. NMR data showed that cows with new udder infections (as measured by high cell counts) have approximately a 50% likelihood of being cured at the next milk recording. However, cows with a chronic high cell count for multiple months have only a 14% likelihood of being cured at the next recording. Overall, **chronic infections are less likely to cure**. Other factors affecting successful cure based on cell counts include **age** (younger cows have better treatment success rates), **previous treatment**, **stage of lactation**, **number of quarters affected** (more quarters affected equals lower success rates), **higher cell counts** and **presence of internal abscesses in udder** (i.e. lumps in the udder). A first lactation heifer with

only one quarter affected has a much higher likelihood of cure compared to an older cow with multiple quarters affected.

The other consideration is: **when is the right time to be treating the cow**, especially for long-standing infections? The most recent NMR 500 herds dataset shows a median dry period cure rate of 77% (cows dried off with a high cell count, but then calving in with a low cell count), with the top 25% of herds achieving the **target 85% of cows cured during the dry period**. Admittedly, these are all based on cell count data (and so subclinical mastitis rather than clinical mastitis), but all of the data would suggest that **treatment is much more effective during the dry period**. Therefore, drying chronic high cell count cows off early represents the best chance of cure.

Whilst choosing the correct antibiotic is important, it is also key to recognise the involvement of these other factors in how well a cow will respond. Indeed, a recent systemic review in the Journal of Dairy Science by Nobrega *et al.* (2020) looked at 30 research trials on the treatment of cows with clinical mastitis using Critically Important Antimicrobials (CIA) such as cephalosporins and quinolones. They found **no difference in treatment success rates for cows with non-severe clinical mastitis treated with CIA and non-CIA**, and concluded that "CIA in general are not necessary for treating non-severe clinical mastitis in dairy cattle".

Mastitis is the main reason for treating adult dairy cows with antibiotics, and treating cows promptly with appropriate antibiotics is undoubtedly key. However, antibiotic resistance is a rare cause of poor response to treatment. The best approach remains to prevent cows getting mastitis in the first place, by reviewing mastitis control measures with your vet.

DHHPS services during COVID-19

We continue to operate as close to normal a service as possible during the current coronavirus situation, including blood sample analysis and reporting. DHHPS@ed.ac.uk is the best way to contact us, and this email address is monitored daily.

LKL Services

Just for fun wordsearch. Find the Gunpowder plot related words hidden in the grid by reading in straight lines – horizontally, vertically or diagonally – in either direction. A word has been added to the list that you will not find in the grid. Work out what that word is! Good Luck!



*Remember,
remember, the fifth
of November,
Gunpowder,
Treason and Plot!*



**AMBROSE ROCKWOOD
CATHERINE WHEEL
CELLAR
CHRISTOPHER WRIGHT
DRAWN
EFFIGY
FIREWORKS**

**FRANCIS TRESHAM
GUIDO FAWKES
GUNPOWDER PLOT
HANGED
HOLBECHE HOUSE
JAMES THE FIRST
PARLIAMENT
QUARTERED**

**ROBERT CATESBY
ROBERT KEYES
ROCKET
THOMAS BATES
THOMAS WINTOUR
WILLIAM PARKER
YORK**