

Livestock

MATTERS

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Copper toxicity

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Dairy sheep and goat conference

Managing clostridial and production diseases in the sheep and goat herd.



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Livestock Matters is published by:

XLVet UK Ltd, Carlisle House
Townhead Road, Dalston
Carlisle CA5 7JF

Tel: (01228) 711788

*This publication is supplied free of charge to farm clients of XLVets member practices.

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THE EDITOR

Welcome to the 'Spring' issue of Livestock Matters

In this issue we examine the fine balance between copper deficiency and copper toxicity with Kirsty Ranson, Westmorland Veterinary Group. We see how easily copper toxicity can develop and how only by looking at all cow inputs was it found to be the cause of cattle deaths on one farm.

We also take a look at sheep medicines with Ed Hewitt, Armour Veterinary Group, who talks us through getting the most out of the medicines you buy and ensuring that they are used effectively to manage disease. We also feature our first article from the inaugural Dairy Sheep and Goat Conference, organised by Friars Moor Livestock Health.

Managing fertility in the spring-calving dairy herd is explored with Dave Gilbert, Lambert, Leonard & May. Dave provides us with an update on his work with three producers who block calve on a low-input grass-based system and how they have benefited from a proactive approach to herd fertility.

Finally, we welcome Emily Francis, Torch

Farm Vets, and Matt Raine, Wright & Morten, to the Graduate Diaries team for 2016.

Both qualified in 2015 and have completed the XLVets farm graduate programme - here we pick up with them to find out how they are settling into life in farm animal veterinary practice.

We hope you enjoy this issue of Livestock Matters.

Joanne

Joanne Sharpe
Editor



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Dairy Industry Vet of the future winner

Willows Veterinary Group vet Sam Bowker was presented with the 'Dairy Industry Vet of The Future' award at the Dairy Show in Somerset.

Sam was nominated by Cambridge University, the university he graduated from earlier this year, for his final year project which examined how serum total protein values affect growth rates in pre-weaning dairy calves.

Sam was one of three vets shortlisted for the award. All finalists were interviewed by a panel of vets, farmers and representatives from the award's sponsors ForFarmers about their final-year projects and the challenges facing the dairy industry. Sam said 'I was very pleased and surprised to win this award and the challenge now is to live up to the title.'



Livestock Matters readers ask for more of the same please!

At the end of last year we conducted a readership survey to find out what you like and don't like about Livestock Matters and to get your suggestions for articles that you'd like to see in future issues.

The survey generated a lot of good feedback with many of you requesting 'more of the same'! There are some great ideas for subjects that we haven't yet covered, so our practices are working away to get these articles together for forthcoming issues.

A huge thank you to all of you who took part and congratulations go to Nigel Heep a client of Farm First who won the draw for the hamper.



Nigel Heep, readership survey winner client of Farm First

Friars Moor Livestock Health hosts inaugural Dairy Sheep and Goat Conference

Friars Moor vets organised and ran the first Dairy Sheep and Goat Conference which took place on 26th & 27th January 2016 at Congresbury, near Bristol.



Delegates at the Friars Moor Conference

The conference was developed for small ruminant milk producers, vets and the wider industry – attracting attendees from the UK and even as far as Sweden and mainland Europe and Wisconsin. An impressive line-up of speakers from the UK, Holland and Israel spoke to the 108 delegates.

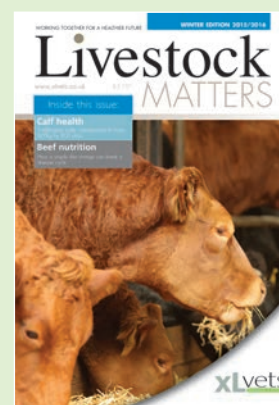
The conference was such a success that dates for 2017 are already agreed – keep a note of **21st & 22nd February** in your diary for next year. Please contact the team at Friars Moor for more information.



The Friars Moor team

Turn to **pages 13-14** for the first of our articles from the conference.

We're always looking for new articles for Livestock Matters, so if you have any thoughts or ideas, or would like to feature your story in the magazine please do get in touch with your XLVets practice.





Sotirios Karvountzis of Shepton Veterinary Group

Study of cattle caesareans will show how to improve post-surgery success

The second stage of the XLVets nationwide audit on cattle Caesarean procedures has come to a close with over 4,500 case studies submitted from 49 XLVets practices across the UK. It's anticipated that the final results will help guide farmers and vets in maximising a cow's return to full health after surgery.

The audit has been devised and organised by vet Sotirios Karvountzis of Shepton Veterinary Group. Of the 4,500 case studies, around 3,000 stem from suckler herds, and the remainder are from dairy herds.

In the first stage of the audit, data was collected on aspects such as the reason for the Caesareans e.g. deformed calves, twins, calving difficulty, the cleanliness of the cow, and the operating technique. The second phase involved monitoring the post-operative care and the animal's recovery over the following two weeks. Further information was gathered on, for example, the speed of healing of the wound, and weight gain of the calf.

The final phase of the study is continuing, and involves monitoring the health and performance of the cows and heifers over the 18 months post-surgery. It will include information on subsequent performance and

fertility, and will enable the factors affecting the success of operations to be evaluated.

Sotirios explains: 'We'd run a pilot scheme here at the Shepton practice, but a larger dataset was needed in order to draw some meaningful conclusions. So this is the first study of this scale to have been carried out, and it would not have been possible without the collaborative spirit of XLVets practices, and the co-operation of all our farm clients.'

'It's too early to report on preliminary findings lest these bias the next phase of data collection. However, we expect the final results to be of benefit to both farmers and vets as they will identify the factors affecting surgery success, and the actions required to maximise the future health and performance of cows and heifers.'

Look out for updates on the project in future issues of *Livestock Matters*.

Farmers Weekly Farm Adviser of the Year

Congratulations to Alistair Hayton of Synergy Farm Health on winning Farm Adviser of the Year at the Farmers Weekly Awards. Alistair was nominated by the public alongside two other finalists for the award.

Richard Sunderland, managing director of Bunn Fertiliser commented on Alistair's achievement: 'We were really impressed with the knowledge and practical implementation of technology to create value for clients shown by Alistair and we are delighted he has been awarded Farm Adviser of the Year.'



Alistair Hayton receiving his award for Farmers Weekly's 'Farm Adviser of the Year'.

XLVets Ireland practices scoop top award

XLVets Skillnet, an initiative from members of the XLVets group in Ireland, has won the top award for Best Learning & Development Organisation – Networks & Groups at the IITD (Irish Institute of Training & Development) National Training Awards 2016.

Commenting after the ceremony, John Berkery, Chairman of XLVets Ireland and XLVets Skillnet observed: 'this award demonstrates the ability of veterinary practitioners to create additional value for the farming community through using training, development and coaching services as routes for delivering preventative healthcare to livestock herds'.

Now in its eighteenth year, the IITD National Training Awards is recognised as the premier Learning & Development event for industry in Ireland. The purpose of the IITD National Training Awards is to promote excellence, best practice and innovation in training, learning and development and to highlight the importance of this area in today's business climate.

Sinéad Heneghan, CEO of the IITD noted

the judges made the award to XLVets in recognition of 'a highly effective initiative that has achieved engagement from the target community as well as corporate and academic support. This group took a proactive approach to resolving problems through education and delivery of relevant and practical training.'

Donal Lynch, veterinary surgeon from Tullamore who represented XLVets Skillnet at the event commented; 'farmers operate in an increasingly complex and challenging environment. Simply throwing more information at them is not helpful. As vets we need to get key messages across in a way that can make a difference on the farm. Training ourselves to be trainers is a key part of that.'

The training initiative was undertaken by XLVets members in Ireland; they are a network of 24 veterinary practices, that work alongside the XLVets practices in the UK. Since inception, XLVets have had great engagement from the farming community, the veterinary supply chain and academia. XLVets saw the problems faced by farmers

and devised a strategy for addressing them through the delivery of relevant and practical training programmes in both Ireland (XLVets Skillnet) and the UK (FarmSkills) that link back to an overall objective of improving health in livestock.

'Training and development is recognised as a critical success factor for future growth and competitiveness in many sectors. Farming is no different! Therefore the role of those responsible for the delivery and management of training is of vital importance.' adds John.



Pictured from left to right: The XLVets Skillnet Team Patrick Clerkin, Conor Geraghty, Geoff Dooley, Denise Duggan, Donal Lynch, Nick Garvey and Ger Cusack



Veterinary surgeon Kirsty Ranson

XLVets practice Westmorland Veterinary Group



Copper in cattle diets: too much can kill

KIRSTY RANSON, WESTMORLAND VETERINARY GROUP

Copper: a deficiency will depress cattle fertility, but too much can kill. Vet Kirsty Ranson from Westmorland Veterinary Practice had a challenge on her hands to fathom out why Neil and Evonne Sowerby's cows would suddenly drop dead. And another challenge to convince them that cows were receiving toxic levels of copper and dietary changes were needed.



Kirsty Ranson with Neil and Evonne Sowerby

Fertility issues

At Townhead Farm near Appleby, Neil and Evonne milk 150 cows averaging yields of nearly 10,000 litres/cow. Kirsty began working with them in September 2013, first helping them to control BVD in the herd.

The following summer, herd fertility was still disappointing. Kirsty explains: 'Heat expression was poor, pregnancy rate was 10-15% instead of the target 20%, and submission rate was 35-40% instead of around 60%. Dry matter intakes were also low. So something wasn't right somewhere.'

Poor fertility can be caused by a lack of copper. In Cumbrian soils, copper can be bound up by other elements like molybdenum, sulphur and iron, making it unavailable to the animal, thereby creating a deficiency.

Also, a minerals analysis of Neil's silage had shown copper level was low.

Neil's dairy rations were formulated by a nutritionist; cows received concentrate

(containing copper) fed to yield in the parlour, and had ad-lib access to a TMR consisting of grass silage, a concentrate blend, and a mineral premix. To ensure copper was not deficient in the diet, Neil sourced the mineral premix separately, choosing one which was high in copper, to aid fertility.

Investigations start

In the spring of 2014, several cows, in quick succession, died suddenly whilst grazing. 'They seemed healthy cows,' says Neil. 'One of them had just milked really well in the parlour, and then an hour later...she was dead!' Although sent for postmortems, no explanation was found.

In July 2014, on a routine visit, Neil asked Kirsty to take a look at some cows which were looking 'sick'. 'They were depressed,' explains Neil. 'Their coats were rough and milk yields had dropped. But we couldn't pin the reason on anything – maybe it was a case of mild acidosis.'

Fertility issues

Kirsty decided further investigations were needed, and that Neil needed to sacrifice two of them which were not in-calf, for more post-mortems. She suspected copper toxicity amongst other possible causes, and specifically requested liver analyses.

Her hunch was right – copper levels in the livers were 'sky-high'. A further six animals – of different ages and stages of lactation – were also sent for slaughter as cull cows, and Kirsty requested that liver samples be taken. Again, levels were high, and especially so in two old late lactation cows.

Neil adds: 'Over a 7-month period, we lost 15 cows. Looking back over time, we had lost a similar number over previous years. It was always the older late lactation cows that died. Fortunately we had sufficient home-bred heifer replacements coming through to maintain herd number and output.'

Copper toxicity

Kirsty explains: 'Cattle can cope for long periods on high copper diets. There is no excretion route for copper other than in milk production, so any excess is stored in the liver. Over time this will reduce liver function. Outward signs of toxic build-up include reduced milk yield, inappetence, lethargy, weakness. Immunity is also compromised.'

'When the liver reaches a critical point of overload, it releases large quantities of copper into the bloodstream, effectively rupturing the red blood cells. Death is instantaneous.'

'Early signs of copper toxicity are rather vague, and diagnosis is not simple. Copper toxicity won't show up in milk or blood tests. It's necessary to either sacrifice a live animal for liver autopsy or have a biopsy carried out – neither of which are cheap.'



TMR – a high copper mineral premix in the TMR was tipping cows into toxicity



Check the specification of mineral premixes

Removing dietary copper

Having identified copper toxicity, Kirsty and the Sowerbys consulted with the nutritionist, and from August, all sources of copper were removed from both the milking cow and dry cow rations.

Kirsty explains: 'Although this meant no more copper could get into the livers, they were still full of copper, so we needed to get it mobilised and into the milk. The nutritionist organised a custom-made high molybdenum premix for all the diets. This would bind up all remaining copper in the diets, and draw the stored copper out of their livers.'

'In a matter of months, we started to see improvements in cow fertility, as a result of the dietary changes.'

Copper: How much to feed?

Kirsty explains: 'Copper has a narrow therapeutic/feed window; this means the difference between animals being fed a deficient diet and a toxic diet is small. So it is important to be aware of the levels being fed. Nor should feed levels of copper be viewed in isolation, because there are so many complex interactions with other minerals and trace elements.'

'The maximum legal limit for feeding copper is 40mg/kg DM fed. But this is a maximum – not a target level!'

'For most dairy cattle 7-12mg/kg DM is ample to sustain good production and fertility. The exception is in areas where other elements may limit absorption, e.g. the Somerset 'teart pastures' where molybdenum levels are exceedingly high and bind the copper.'

'There are breed differences too. Holsteins don't require as much copper as Friesians, and Jerseys need even less.'

Care with copper

Kirsty adds: 'It is vital when calculating copper intakes that every source is considered. A nutritionist will be aware of the copper going in via the concentrates and straights within the main ration, but may

not be aware of the levels in mineral premixes as these are often purchased from different sources. This was the root of the problem at Townhead Farm – a mineral premix with far too high an inclusion of copper.'

'Similar toxicity issues can also occur when farmers are using boluses for their dry cows with selenium and iodine to prevent weak calves. These boluses also provide ample copper for 4-6 months, so the farm's nutritionist needs to know about this!'

'Another common error made is to add 'just a bit more' premix than prescribed, thinking that increasing mineral levels will have a positive effect. This is not necessarily the case, and it will cost more for no gain.'

Going forward

At Townhead Farm, Neil is now sourcing his mineral premix through his nutritionist, and a low copper cake is now fed in the parlour.

There have been no more cattle deaths since October. Fertility has been steadily improving too with improvements in heat expression and conception rate. The submission rate is now 55% and pregnancy rate 20% – a good level for a Holstein herd.

Kirsty adds: 'Adding less copper to the diet has not only saved money in mineral costs, but fertility has improved and the number of fertility treatments required has more than halved.'

'However, we need to be careful not to cause a reverse problem! Blood tests can be used as an indicator for low copper levels and so we are monitoring heifers to ensure their fertility will not be compromised through copper deficiency.'

Neil and Evonne are happy to admit that Kirsty had a challenge on her hands to convince them to cut back on copper. 'I was a firm non-believer to start with!' says Neil. 'But I now realise I had been killing my cows with kindness!'



Copper toxicity was manifesting in later lactation cows giving less milk

ED HEWITT, ARMOUR VETERINARY GROUP

Caring for the health of your flock: are you doing it right?



Veterinary surgeon Ed Hewitt

XLVets practice Armour Veterinary Group



On sheep farms, the use of medicines to ensure good flock health represents a significant cost for the enterprise. To avoid wasting time and money on products, it's important to ensure that the right medicine is used for the right reason, at the right dosage, and at the right time. And in-between times, that products are stored in the right conditions.

Here, vet Ed Hewitt from the Armour Veterinary Group gives some advice on correct use and storage of a range of medicines, and includes some checklists for their successful use.

Clostridial vaccines

'There are a number of clostridial diseases in sheep,' says Ed. 'And there are a range of vaccines available which cover from one to ten of these clostridial diseases. Some also give protection against Pasteurella.'

'The choice of an appropriate vaccine is best discussed with the farm's vet, and will take into account the disease history of the farm.'

'Farmers should be aware that all of the clostridial vaccines for sheep require two doses to be given initially, and these must be administered within the correct timeframe in order to be effective. To extend the protection, this initial course then needs to be boosted with a single injection of the same vaccine up to a year later.'

Checklist for success:

- Ensure injection equipment is calibrated to the correct volume
- Administer via the correct route
- Store and transport at the correct temperature
- Ensure time elapsed between 1st and 2nd injections is correct
- Use a guarded and sterilising injection kit
- Do not inject wet or dirty sheep and ensure equipment is clean
- Do not administer two different vaccines at the same time (allow 14 days between different vaccines)
- Ensure the booster vaccine is the same vaccine given at the primary course.



Use clean injection equipment fitted with a guard and sterile injection kit such as Stermimatic™

The right timing for abortion vaccines

'Vaccinating for the control and prevention of toxoplasmosis and enzootic abortion requires only a single injection. However, the timing of administration is very important; most products need to be administered to the ewes prior to the ram going out. So please check the data sheet and follow the recommendations.'

The principles for ensuring the effectiveness of these vaccines are similar to those for clostridial vaccines (see bullet points to the left).

Worm when needed

A worming programme, drawn up in conjunction with the farm vet, is a key element of the flock health plan.

Ed adds: 'The objective of worming lambs is to ensure growth rates are maintained, while preventing the development of wormer resistance on farm. It's important that medicines are used only when needed.'

'Sheep develop an age-related immunity to gut worms that is generally life-long. Therefore, adult ewes do not require regular worming. In fact, it is not only wasting money on product and labour that's not required, but it can also help speed up resistance to the wormer on farm.'

'The only exception is around lambing time, when the 'peri-parturient rise' occurs as a result of waning immunity due to the stress of

pregnancy. Here, ewe nutrition is key to limiting the peri-parturient effect. The management of ewes through this period will depend very much on the specific farming system and should be discussed with the farm's vet.

'Lambs will likely require treatment for worms to help maintain growth rates before being sold for store or for slaughter. There are currently three broad spectrum anthelmintic groups available for the routine worming of lambs (See Table 1). The use of two or more of these anthelmintic groups – white, yellow and clear drench – may be required during any one season. The dosing interval between these products will depend on the product used and the pasture management on the individual farm.'

Ed adds: 'Not every dirty-tailed sheep or lamb has worms! So if in doubt as to whether treatment is required, faeces samples should be collected and checked to see if worm eggs are present.'

'Pasture management and rotational grazing also have a role to play in limiting reliance on wormers.'

Checklist for success:

- Calibrate dosing equipment
- Dose for the heaviest animal
- Use product at the correct interval
- Utilise faecal worm egg counts or targeted selective treatment based on weight gain.



Drenching equipment should be calibrated regularly

Quarantine dose

To minimise the chance of bringing resistant worms onto the farm, all purchased sheep

should be quarantined and drenched with one of the new categories of wormer, a purple or orange drench. This should only be done in consultation with the farm vet, and the protocol should be part of the flock health plan.

Table 1:
Classification of anthelmintics

Broad spectrum anthelmintic groups	
Benzimidazoles	White drench
Levamisoles	Yellow drench
Macrocytic Lactones	Clear drench
Quarantine wormers	
Abamectin and Derquantel	Purple drench
Monepantel	Orange drench

Flukicides

A number of products are available for the treatment of liver fluke, with different products killing different stages of fluke.

'The best product to use will depend on the farm history and the time of year. The fluke challenge can vary each year, so treatments need to adapt and change accordingly,' says Ed.

'NADIS and SAC both provide fluke forecasts, and this information will be used by the farm vet, to formulate an appropriate fluke control programme.'

'Faeces sampling to determine fluke infestation levels can be useful. Bulk sampling can be used to keep costs down; faeces from 10 individual animals are submitted and then pooled at the lab. This composite sample is then assessed for the presence of fluke eggs.'

'Eggs are most commonly shed between 10 and 12 weeks after infection. So caution needs to be employed as an animal may have a high immature fluke burden but not be shedding eggs yet. Treatment decisions should take account of all the available information, and be based on how the sheep are doing.'

Checklist for success:

- Calibrate dosing equipment
- Dose for the heaviest animal
- Use a product appropriate for the time of year
- Check product efficacy where resistance is suspected.

Antibiotics

'Antibiotic use on farms is coming under increasing scrutiny. Antibiotics must only be used following veterinary advice. It is essential to ensure the correct dose, route and timing of administration to avoid the risk of resistance developing. Adhering to the correct product guidelines will maximise success rates.'

Medicine storage

Different products require different care in storage to ensure product efficacy. Storage information can be found on the product packaging.

Vaccines need to be stored in a fridge – but never in the fridge door, as this area has the greatest temperature fluctuation. They should be transported from the place of purchase in a coolbag, or similar, with a cold pack inside. Farm fridges should have a maximum/minimum thermometer inside to monitor temperature, and this information should be recorded weekly.



When indicated, store medicines in a refrigerator and check the maximum and minimum temperature of the fridge

Wormers and antibiotics need to be stored at room temperature. But beware of keeping them in unheated farm buildings in the winter, as many products will be rendered ineffective if subjected to frost or extreme temperatures.

Expiry dates also need to be monitored so that stock can be rotated; this ensures out-of-date medicines are not used.

Flock health plan

Ed says: 'The use of any medicines on-farm should be integrated into disease treatment and prevention plans and form part of an overall health plan for a flock. This should be reviewed annually with the farm vet because new products may have become available, and disease challenges fluctuate.'

'With veterinary input, a planned approach will ensure that the right products are used at the right time and at the right dose, prevent time and money being wasted, and maximise profitability and production.'

Investing in fertility to keep dairy cows in the calving block



Veterinary surgeon **Dave Gilbert**

XLVets practice **Lambert, Leonard and May**



DAVE GILBERT, LAMBERT, LEONARD AND MAY

On dairy farms operating a block-calving system, a range of synchronisation programmes are available, through vets, to assist breeding and ensure that cows and heifers calve within the block, and can therefore stay in the herd.

Vet Dave Gilbert of Lambert Leonard and May Veterinary Practice explains: 'In low input grass-based systems, synchronisation programmes are an essential tool because they enable calvings to take place at the start of the block. This gives the animal a longer recovery time before the next breeding, more days in milk, and a reduced risk of being culled due to slipping out of the block.'

'Another benefit of these programmes is that they prevent heifer replacement calves from being born late in the block where their younger age would create challenges in getting them to meet the growth target to be ready for breeding in time.'

However, Dave believes some farmers are delaying initiating fertility treatments to save money on medicine and vet costs, but losing more money through having cows calving late in the block, or outside of it.

Act or 'wait and see'?

Dave works with a number of spring block-calving herds in Cheshire and Staffordshire, on low input grass-based systems.

Dave explains: 'The 'traditional' approach is to wait for cows to come into heat, allowing them a couple of weeks to do this before taking action. Some of them will express oestrus naturally, and so money will have been saved on fertility treatments. Others will require treatment, and for those, time will have been lost.'

Alternatively, a more proactive approach can be taken, and all non-cycling animals treated at the start of the breeding period.

To quantify the benefits of taking a proactive approach versus the traditional 'wait and see' approach, Dave carried out a trial in the spring of 2015.

On three block-calving farms, heat detection aids were applied to cows, as was routine, four weeks prior to the commencement of breeding. Animals were then monitored for heat expression.

After three weeks all cows not seen in heat were examined. Those with uterine or ovarian disease were treated as normal on the farm. Then any non-cycling cows were randomly allocated to either a 'proactive synchronisation' group, or a 'wait and see' Control group.

The synchronisation group cows received a programme of fertility treatments which included an intra-vaginal device which gives a slow release of progesterone to top up the cow's own progesterone and help kick-start cycling.



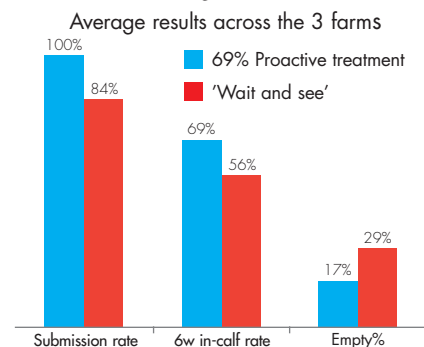
An example of an intra-vaginal device that releases a controlled flow of progesterone to the cow

In the Control group, cows were given 14 days to come in heat so they could be served. Those showing no heat were re-examined and treated as necessary.

The benefits of taking a proactive approach were clear; as expected, the 3-week submission rate for cows treated proactively was 100%, but only 84% in the Control group. On average, proactive treatment reduced the number of days to first service by 12 (from 14 days in Control group to 2 days in the treated group), and the days to conception shortened by 7 days (from 26 days to 19 days in the treated group).

Dave explains: 'This had a direct effect on the 6-week in-calf rate, which was 69% in the treated animals, an increase of 13% over the Control group.' (See Figure 1)

Figure 1:



'Moreover, by taking a proactive approach, only 17% of animals were empty at the end of the breeding period, compared with 28% in the Control group; that equates to 11 animals per 100 cows that would still not be in-calf and need to be removed from the herd.

'This has a big financial impact on these grazing-based farms, because here, a cow is either in-calf in the block, or not-in-calf and a candidate for culling.'

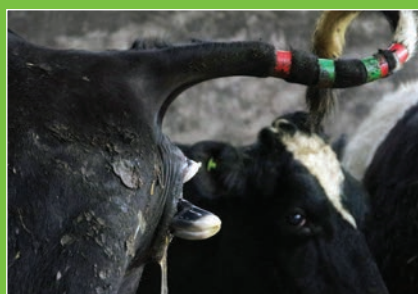
Block calving at Brookhouse Farm

One of the farms involved in Dave's synchronisation trial was Brookhouse Farm near Stafford. It is one of two dairy farms managed by Ian Lightfoot. Here, 290 cows are calved down in an 11-week block starting mid-February and continuing into April.

Ian explains: 'Block calving keeps things simple for us. We can concentrate on one job at a time. Aside from myself, we have one full time herdsman here, with relief milkers and extra stockmen at busy times.

'We aim to have 75% of the herd in-calf to AI in the first six weeks of the breeding block, and these will be the source of the heifer replacements. This drives everything else we do. Another target is for no more than 10% to be empty by the end of week 11.

'We want to have 90% of the herd calved in the first six weeks so that cows have not only more days in milk but also more days making milk from grass,' adds Ian.



Cows and heifers need to calve at the start of the block (The green tapes denote early March calver, red tapes were put on when dried off)

Breeding protocol

At Brookhouse Farm, cows are given a pre-mating examination by the herdsman, four weeks before the start of the breeding period (which is May 11th). Scratch cards are then applied to monitor heat expression.

Dave then visits three weeks later to examine the non-cycling cows.

'Dave understands the challenges we have, and we use his knowledge,' says Ian.

'Following discussions with him a few years ago, we have stepped up our programme to include the use of intra-vaginal devices to boost progesterone levels.'

Nowadays, any cows not seen bulling are put straight onto a proactive synchronisation programme. 'This year we have ear-tagged those cows which needed this proactive treatment so we can monitor their future health and fertility,' adds Ian.

Heifers undergo the same process. They are reared off-site but will re-join the herd in mid-January.

Any cows that are not in-calf by the following spring are run with bulls in the November. They will either be moved to the second farm where there is an autumn calving block, or sold as autumn calvers. 'But a cow is only allowed to slip a block once!' says Ian.

Calving protocol

With 290 cows to calve in 11 weeks, management is aided by the use of different coloured tail tapes.

Ian explains: 'At drying off, cows are given a mineral bolus, and those due to calve in February are given a blue tail-tape. It's a similar process for the heifers. We use three more tape colours to identify those calving in the first or second half of March, or April.



Different coloured tail tapes are used to make management easier

'Three times each week, the dry cows and heifers are run through the parlour and those bagging up are pulled out into the calving yard.

'Once calved, cows are turned out to graze. They are rotated over 91ha of grazing, from February through to November. We are aiming to achieve yields of 5,000 litres per lactation, feeding 650-700kg of concentrate to supplement the grazing and silage.

'We will make a 3-week post-calving metritis check on the cows and heifers. Those with a clean bill of health have their coloured tape replaced with a white tail tape, whilst those without are treated and checked again.'



The first of the February-calved cows – now out grazing the overwintered grass

Proactivity pays off

So is a proactive synchronisation programme worth the money and effort in block-calving herds? 'Yes,' says Dave. 'In grass-based block-calving systems, the management of 'non cyclers' is a critical component in reaching both 6-week and final in-calf rates.

'Even with poor milk prices, investing in a synchronisation programme still gives a very good return on investment – I reckon at least a 4:1 return right now, and the payback will be even better when prices rise.'



Ian Lightfoot with dry cows in the shed



Veterinary surgeon **Will Sheppard**

XLVets practice **Endell Veterinary Group**



WILL SHEPPARD, ENDELL VETERINARY GROUP

Improvements in nutrition and management made as suckler herd expands

Wiltshire farmer Tom Parsons has been expanding his beef suckler herd, increasing from 180 cows in 2012, to 270 cows, today. Along the way, vets from Endell Veterinary Group have helped him to make changes to improve herd fertility, performance and ease of management.

The herd is composed mainly of Angus and Hereford crosses sourced from dairy farms, and Tom was planning to expand by simply buying more in. Endell vet Will Sheppard explains: 'But increasing cow numbers is not necessarily a direct route to more profit. There are a number of other factors which impact on profitability – the key health issues which were going to limit this for Tom were fertility and nutrition.'

Plain challenges

Tom has some extra challenges running his cattle on MOD land on the Salisbury Plain, he explains: 'On the firing ranges, no person is allowed to be there during the day from 8 o'clock in the morning until 4 o'clock in the afternoon. So we have to plan around that. Plus two nights each week there is nightfiring and we can't go on then either!'

'We have to give two months' notice on where we plan to graze our cattle, and there's no opportunity to improve the grassland. There's also no mains water, it's all bowsered.'

Abiding by these restrictions, cows and heifers used to be grazed on the Plain, rotating around three 8ha pens. They are brought back to the farm in the last 2-4 weeks of pregnancy, and are calved indoors. After a couple of days, with calves suckling well, they are returned to the grazing area.

One tight calving block

Will explains: 'At the start of the expansion programme, the autumn and spring calving blocks had become so extended that calves were being born all year round. I'd also find a lot of empty cows when PD-ing because they hadn't had time to start cycling again. To get the later calving cows back in-calf, bulls were being left in for longer periods, further spreading the calving period.'

In 2013, the pregnancy rate in the spring calving block was 84%, and in the autumn calvers, 85%. But the 21-day calving rate was only 9%, falling well short of the target



Tom Parsons

65%. And at 9 weeks, there was still 50% of the herd left to calve.

'For maximum efficiency, the ideal is to have one tight calving block, achieved by running the bull with cows for no more than 12 weeks,' says Will. 'It is easier to nutritionally manage a group of cows that all have similar energy requirements, so that body condition scores can be maintained in the optimum range of 2.5-3 out of 5.'



Finishing beef cattle

The following year, Tom shortened the bulling periods to 16 weeks, improving the 21-day calving rate to 19%, and with 50% of the herd calved in 5 weeks, which gave a more uniform and easily managed crop of calves.

Will adds: 'The fertility results were very good for the cows and heifers but much poorer for the first calvers and thinner cows. When we investigated, we could attribute this to two factors; one bull being run with 65 cows, which was too high a number. Secondly, many of the not-in-calf animals were Aberdeen Angus cross Holsteins – these were putting too much of their energy into the calf and not their own body condition, so I advised Tom to avoid this breed type.'

Further improvements were made in 2015 with the move to a single spring calving block; it also took only 3 weeks (21 days) for 50% of the herd to calve (an improvement of 31% on the previous year's 21 day calving rate). Tom ran bulls with the cows for only 13 weeks, and initial PD results indicate an even tighter calving period this year.

Separate groups

Another key change has been to manage the herd as two separate groups.

The main herd of cows continues to be extensively grazed on the range. They are buffer fed with silage to help manage their body condition scores.



Heifers and calves are grazed on good quality leys which are part of the arable rotation

'But heifers will still be growing and need more feed than cows, yet grazing on the range is poor quality,' explains Will. 'So now Tom has increased the proportion of grassland in his arable rotation, so they can graze better quality leys, and be more readily accessible.'

'As a group of younger animals, there is also less likelihood of bullying from older cows. Any thin cows and second lactation cows needing special care are also put into the heifer group.'

Mineral deficiencies resolved

In the spring of 2013, Tom noticed that many of the calves born did not have the vigour to get up and suckle as normal. Then in the autumn batch, there were a dozen cases of congenital dwarfism in calves born to cows that had been housed and fed only on grass silage for the last trimester of pregnancy. This was potentially indicative of manganese deficiency.

'Indeed, blood tests on the dams revealed not only a severe iodine and manganese deficiency, but also borderline selenium deficiency,' says Will. 'In severe cases, iodine deficiency can give rise to stillbirths, but in mild cases it is enough to prevent calves from getting going when born.'

Tom now gives all cows a mineral bolus in January. It is timed to cover them for calving and for the first two months of service.

'Since adopting this strategy, there have been no retained cleansings at calving, and it has markedly improved calf performance,' says Tom. 'It takes a long time to get a dopey calf to suckle. So it has freed more time up for other things. It also means we can get them outside again in a couple of days.'

Will adds: 'By being in the calving pen for a shorter time it also reduces their exposure to disease challenge.'

Bull testing

Tom puts Limousin and Angus bulls onto the heifers, and uses Charollais bulls for the cows.

Will explains: 'A bull can be fertile one year, but not the next. So every breeding bull should be given an annual MOT test – or Bull Breeding Soundness Examination – which includes semen testing and checking their feet.'

Will tests all Tom's 11 bulls in March, sufficiently in advance of the breeding period so that there is time to source replacement bulls, if needed.

Bulls are run with the cows at a ratio of 1:30, and not exceeding 1:40. For 100 cow groups, at least 4 bulls are put in. Where cow groups are small enough for a single bull to be run with them, Will recommends that a new bull is rotated into the group partway through the breeding period.



Tom's cattle

Benefits

Moving from two extended calving blocks to one much tighter block has made herd management a lot easier for Tom. He has changed from selling stores in March and April at Frome market, to now finishing cattle to sell them dead-weight in January and February. He has also ventured into a contract to supply bull beef.

Will says: 'With the tighter calving pattern comes easier management of a larger group of animals. Jobs such as calving, weaning, PDing, etc don't take so long, freeing up time to invest in other business opportunities such as the huge increase in bull beef this last year.'

Tom adds: 'With a similarly aged group of calves, it's a lot easier to make plans on using the available shed space. I can buy in bull beef to avoid having empty sheds, not making any money.'

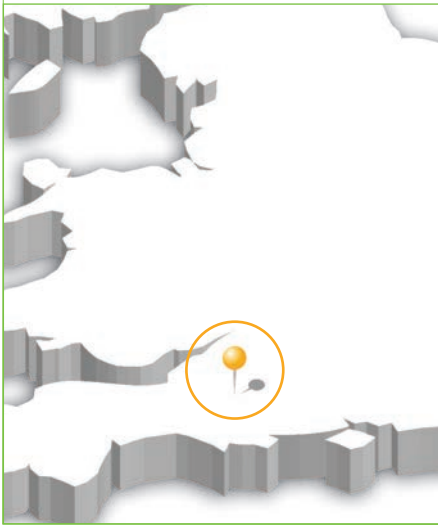
Will adds: 'Nowadays there are more calves weaned per cow per year, which is a direct increase in income. And having a tighter, more even group of calves means health is better and growth more even, ultimately resulting in a healthier, heavier and more saleable group of cattle.'



Tom and Will in front of some Charollais crosses that are nearing being finished

Prevention and control of common diseases of (dairy) sheep and goats

Friars Moor Livestock Health



Earlier this year, Dorset vet practice Friars Moor Livestock Health held an inaugural conference for those involved in milking sheep and goats. The two-day event was a sell-out success with just over 100 delegates attending.



Friars Moor Team: Back row, left to right Lucy Hepworth, Sarah Eckett, Eleanor Price and Izzy Place. In the front: Yoav Alony-Gilboa and Anthony Wilkinson.

Amongst the speakers were well-known veterinary consultant David Harwood who outlined the key clostridial diseases affecting sheep and goats, and Mick Millar from the University of Bristol who introduced the concept of 'iceberg' diseases to the audience.

'Clostridial diseases are caused by anaerobic bacilli of the family clostridia,' explained David Harwood. 'They are widely distributed in the environment, and are the classic cause of sudden death in sheep, and also an important cause of diarrhoea and death in dairy goats.'



David Harwood

Clostridial diseases

'A lot of healthy animals have low levels of clostridia in their gut and it is only when an animal's natural immunity is compromised that clostridial diseases become a problem.'

'These disease outbreaks are unpredictable, but trigger factors include a sudden change in diet particularly with associated acidosis, a change such as turnout to lush grazing, or housing, and any stresses, e.g. bullying, or the presence of other disease.'

'This means farm biosecurity is of little value in preventing clostridial diseases, and control is best achieved with vaccination.'

There are many types of Clostridia in the environment, but at least ten have been reported as causing disease and death in ruminants. David highlighted some of the most common.

'Tetanus can occur in both sheep and goats following surgical intervention such as castration, or wound infection; the classical signs are early stiffness when walking followed by tetanic spasms and bloat. Treatment is disappointing and so the focus should be on prevention.'

'In lambs, pulpy kidney is a very common clostridial disease. Since death occurs in less

than 24 hours, farmers are more likely to find a dead lamb than actually witness clinical signs. If still alive however, lambs typically display star-gazing behaviour.'



Star-gazing lamb

David explained that black disease and black leg disease are the outcome of a gas-gangrenous type of clostridial infection. Black disease is linked with fluke infection; as the fluke migrate through liver tissue they activate dormant spores of clostridia and outbreaks occur. So fluke control is a factor in its prevention, as well as vaccination.

Another clostridial disease – Malignant Oedema – can arise when damage is incurred in lambing or kidding. It creates a severe swelling (oedema) in the anal and perineal area. David advised farmers to discuss with their vets a protocol for using an antibiotic for lambing or kidding injuries.

In goats, the main Clostridial threats are tetanus and Enterotoxaemia. Clinical signs of Enterotoxaemia can be rapid death, but at sub-acute levels, there will be profuse diarrhoea.

Vaccination

There are several different vaccines with a marketing authorisation for sheep, which can give protection for up to 10 different clostridial diseases.

However, there are no licensed vaccines for use in goats, but as they only need protection against enterotoxaemia and tetanus, David recommends a 4-in-1 vaccine. But as goats develop only a poor immunity, a booster vaccination should be given every six months, or more frequently if the vet advises. He added: 'There's no damage caused by over-vaccinating.'

He recommends that farmers take advantage of vaccines which protect against Pasteurella as well as clostridial diseases.

He said timing of vaccination is important, and also that the strategic use of boosters in the run up to lambing/kidding (6 to 2 weeks before) can maximise antibodies in the colostrum. All stock – including rams/bucks – should be vaccinated and the manufacturer's recommendations need to be followed.

Production-limiting 'iceberg' diseases

Mick Millar outlined the signs and treatments for a group of 'iceberg' diseases, so called because animals showing clinical signs were just the tip of the iceberg, and others would be infected at sub-clinical levels.

Mick highlighted three diseases with causative agents that persist in the environment; Johne's disease, CLA (Caseous Lymphadenitis) and OPA (Ovine Pulmonary Adenocarcinoma).

Mick explained: 'These diseases are probably under-diagnosed as they are difficult to detect because the tests available have poor sensitivity, or there is no test available at all.'



Mick Millar

Johne's disease

Johne's is caused by a mycobacterium in the gut which causes the lining to thicken. Infected animals shed the bacterium in faeces and colostrum – into the environment, where it can persist for a long time. There are different strains, and cattle strains can also affect sheep and goats.

'Johne's is a major reason for culling in goat herds,' said Mick. 'It has a long incubation period, so disease may only become apparent when animals are two or three years old.'

'Symptoms are progressive weight loss and often anaemia. Sometimes fluid swelling under the jaw is seen. In cattle, diarrhoea is seen, but in sheep and goats diarrhoea is less common and the main clinical sign is wasting, and a consequent drop in milk yield.'

'Diagnosis is difficult in the early stages,' explained Mick, 'but blood and faecal tests in the later stages can identify it. Post-mortems are useful for diagnosis though in sheep and goats typical changes in the intestine can be variable.'



Typical thickening of the intestine in a ewe with Johne's disease (the thickening seen here may not be so obvious in other affected animals)

'There is no treatment for Johne's disease so the only option is to cull.'

To prevent the disease, he advised farmers not to graze cattle with sheep and goats; to ensure good hygiene in lambing/kidding sheds to reduce exposure to faecal contamination; and snatch kids/lambs at birth and feed them pasteurised colostrum, rearing them away from adults.

There is a vaccine for Johne's disease which needs to be given between four weeks and six months of age. However, Mick warned that this can interfere with TB testing, so ideally a closed herd/flock should be maintained.

Caseous Lymphadenitis (CLA)

CLA is caused by a bacterium which causes lymph node and internal abscessation in lungs and the abdominal cavity. It is associated with wasting, and only occasionally results in death.

'It is highly infectious and will survive in the environment for months,' explained Mick. 'There is no effective treatment for CLA, and infected animals remain so for the rest of their lives.'

The disease is spread by contamination of feed troughs, shears and ear-tagging equipment, by infected pus and nasal discharge, faeces and skin wounds. A blood test is available but it has poor sensitivity so may not identify infected animals (13% can be missed). Testing should be done every six months on animals older than six months if attempts are being made to eradicate it.

'The introduction of infected stock is the main source of infection on farm,' explained Mick. 'So prevention is best achieved with strict biosecurity measures; this includes disinfection of clothing and equipment.'

Ovine Pulmonary Adenocarcinoma (OPA)

There are several names for this disease; sheep pulmonary adenomatosis (SPA), Jaagsiekte disease, or ovine pulmonary adenocarcinoma (OPA).

'OPA is associated with 25% of the pneumonia cases in sheep in Scotland,' said Mick.

The causative agent is a virus that gives rise to tumours in the lungs. It is spread by respiratory secretions, and outward signs include weight loss, coughing, difficulty breathing and nasal froth/discharge. Secondary infections can also follow.



OPA is associated with 25% of pneumonia cases in sheep in Scotland

'OPA is difficult to control because there is no blood test available, and it relies on waiting for clinical signs to appear. However, infected sheep often show no visible signs so it is easily spread between flocks when sheep are purchased,' said Mick.

Disease control

Unlike clostridial diseases, control of these three production-limiting diseases centres on biosecurity measures, as there is only a vaccine for Johne's disease. Mick recommends that farmers only buy disease-free accredited stock; cull any infected animals, segregating them immediately; and reduce the level of challenge e.g. through good hygiene, and by not pooling colostrum.



Clostridial disease; the classic cause of sudden death in sheep



Practical Guide

Welcome to our first in a series of FarmSkills practical guides that aim to provide you with top tips and best practice advice for a range of on-farm animal health tasks.

Taking a sterile milk sample for bacteriological culture

Bridget Taylor Wright & Morten Veterinary Surgeons

Bacteriological culture of a milk sample from an affected quarter should be the most reliable method of identifying which pathogen is causing mastitis, whether clinical or subclinical. It is vital that the milk sample cultured is not contaminated by stray bacteria on the outside of the teat/udder or from the teat canal, otherwise the culture results will be confusing or misleading.

In the case of clinical mastitis, the sample should be taken when the problem is detected, preferably before the cow is milked. For subclinical mastitis, where the cow has a high cell count but no obvious clots from a particular quarter, the affected quarter(s) should be identified using a California Mastitis Test (CMT) kit and that quarter sampled, similarly before milking. To learn how to do a CMT you can watch our FarmSkills video on the Farmers Weekly You Tube channel.



1. Teat preparation

- i. If the teats look clean, go straight to stage ii. If the teats are dirty, clean off dirt from the teats only (not the udder) with clean running water from the in line hose, then dry with paper towel.
- ii. Pre-dip the teats with rapid acting pre-dip (as shown in Figure 1) then dry wipe or use an individual proprietary pre-dip impregnated cloth (see Figure 2).
- iii. Wearing a clean pair of gloves, strip out foremilk from affected teat with 3-4 draws.
- iv. The whole teat surface should then be disinfected using a surgical spirit soaked swab/cotton wool (see Figure 3).
- v. Then, with a new spirit soaked swab, scrub the teat end gently.

Figure 1



Figure 2

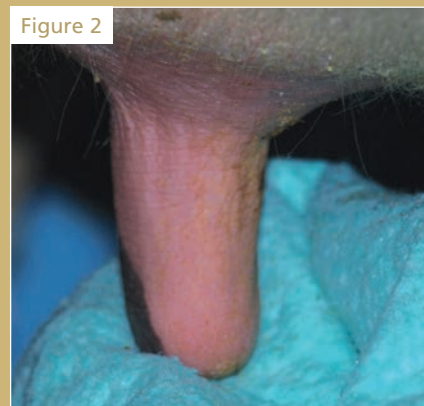
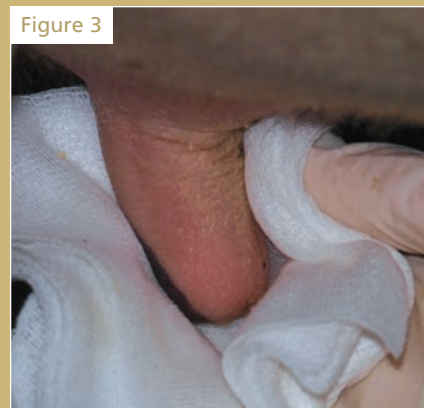


Figure 3



2. Taking the sample

- i. Remove the lid from a sterile pot (as supplied by your veterinary surgeon) and hold the pot in one hand at a 45° incline to the teat end (Figure 4), then milk out the sample from the teat with the other hand. Only a few millilitres are required, not a whole pot full - see Figure 5.
- ii. Avoid touching the inside of the pot and the lid with the teat or your hand and replace the lid as soon as possible.
- iii. Label the pot with the cow's number and the ID of the affected quarter.

Figure 4

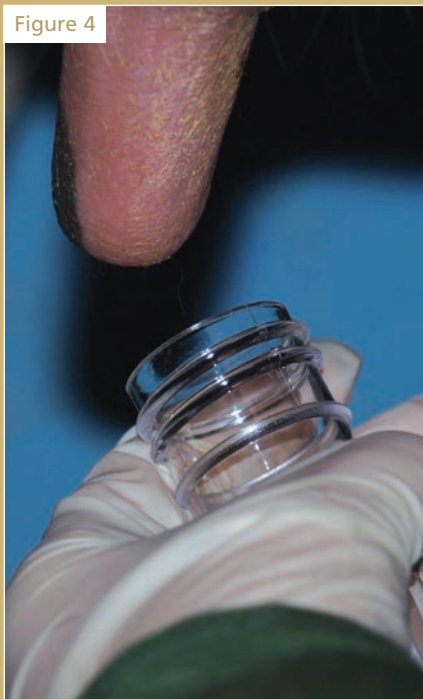


Figure 5



3. What to do with the samples

- i. Take the sample to your veterinary practice for submission to their own laboratory or referral elsewhere.
- ii. Samples taken from clinical cases of mastitis can be frozen in the farm freezer and submitted as a batch when convenient without significant loss of viable mastitis bacteria from the milk.
- iii. If you intend to take samples from a group of high cell count cows with no clinical signs, then consult your veterinary surgeon prior to sampling. These samples, taken from identified high cell count quarters, should not be frozen so are best taken at the start of the week to allow immediate postage (if necessary), receipt and processing at the laboratory on a week day.

Identification of the high risk mastitis pathogens on your farm plays a key part in formulating a mastitis control plan. It helps decision making in selecting appropriate antibiotics for milking cow and dry cow therapy. Understanding which bacteria are causing problems will help you and your vet together to look at the relevant aspects of milking routine, cows' environment and cow health and target specific areas in order to reduce the mastitis challenge.

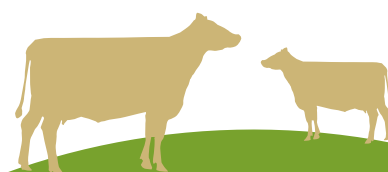
FarmSkills Environmental Mastitis Course

Why not increase your knowledge environmental mastitis and how, working with your vet, this disease can be managed to minimise costs and losses associated with it?

The FarmSkills Environmental Mastitis course provides an opportunity for dairy farmers to further their knowledge of the principle environmental mastitis pathogens, the basic epidemiology of these infections and the key areas of control. During the course, delegates learn how to:

- Define mastitis and understand the cow's defences against it.
- Recognise mastitis and use a CMT.
- The principle environmental mastitis pathogens, *S. uberis*, *E. coli*.
- Calculate the economic cost of mastitis.
- Appreciate the welfare cost of mastitis.
- Identify the causes of environmental mastitis i.e. milking time infections, inter-milking infections and dry period infections.
- Identify and reduce environmental causes of mastitis.
- The critical control points of environmental mastitis control; reducing environmental challenge, optimising immune function, milking machine maintenance and dry cow therapy.

For further details and to find courses running in your local area visit www.farmskills.co.uk.



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GRADUATE DIARY

Emily Francis, BSc MRCVS BVM&S

Torch Farm Vets



About me

I graduated from the University of Edinburgh in Summer 2015 and started my farm vet internship programme at Torch Farm Vets the following October. I am part of a large team of 17 dedicated farm vets, four TB testers and a whole host of invaluable support staff based over five sites covering North Devon.

My interest in production animal medicine was well cemented before starting university and I have not once looked back on my decision to go straight into purely farm animal practice. Even on rainy days, which are a very common occurrence in Devon, I can't imagine doing anything else.

I took part in the XLVets farm graduate programme in late 2015 and it's really helped me get off the ground with clinical decision making by refreshing my knowledge and asking all those stupid new graduate questions! I met a great bunch of people and it's a great way to reach out to the wider XLVets community.

I have a particular interest in calf health, youngstock management and the prevention of perinatal lamb losses, I hope to learn a huge amount more in these areas in the following months.

Outside of work I have just joined a local cricket club to continue my keen interest in playing and coaching when I am not out walking my new Springer Spaniel 'Ted'.

Starting out

The first few weeks of starting as a new graduate vet is a very daunting experience. I definitely underestimated how tiring upping my life and moving to a completely different part of the country without knowing anybody would be, and that's before I even started a day's clinical work. But after four months I have really started to find my feet and I'm now getting into the swing of things.

My day-to-day work is really varied and I'm making the most of not having routine fertility visits as I get out and about with emergency work. I love getting into the practice every morning not knowing what cases may be thrown at me. My confidence is improving daily in being able to clinically assess sick animals and make the best possible treatment plan, even if I am unsure of the cause. One thing I have learnt is to ask questions. Despite feeling like a reoccurring nightmare, everyone is so helpful and you can gain so much information from going back to the practice and discussing cases to gain a bit more of a detailed picture about what you have seen. I always try to follow up the cases with farmers to keep building on the experience bank and it's so rewarding when a sick animal you have seen has improved. With lambing season well underway my days are getting busier and I managed to get my first caesar under my belt before Christmas; there were some very lively Dorset lambs up and about before I left the farm.

As a student, TB testing is always quite a laborious task but I underestimated how useful it would be for a new graduate in getting out on farm and meeting farmers. It's also an opportunity to see every animal go through the crush, it sparks up conversations on how things are going and I very rarely do a test without seeing a clinical case. However, they can be stressful days for all involved and they really teach you empathy for the situation that the farmers are currently in, especially in the south west. A clear test makes my day just as much as finding a reactor can really dampen it, but these highs and lows are part and parcel of the job.

I have got heavily involved in the XLVets Calf Tracker scheme which our practice started running with our dairy farms a few months ago. The scheme aims to get farmers to look at their heifer rearing by measuring

colostrum transfer, growth rates and disease incidence. Calf health is one of my key interests and my Calf Tracker visits are giving me an invaluable opportunity to get on farm and see how different farmers raise their heifers, and how this translates onto paper. One thing is for sure, I have become pretty quick at taking blood samples from small, wriggly calves! The mild wet weather is contributing to the increasing numbers of calf pneumonia cases this winter, some days it feels like a pneumonia hotline in the office! But it has meant my knowledge was quickly brushed up in order to help each individual with the situation on their particular farm.

As my year progresses I'm sure I will have lots of clinical achievements, and just as many failures to share with you. My biggest advice for other farm vet new graduates is: make road maps your best friend, get involved with everything you possibly can and make sure you give yourself enough time to enjoy it!



TORCH
FARM



GRADUATE DIARY

Matt Raine, BVMedSci BVM BVS MRCVS

Wright & Morten



From dairy data to lambing courses

It's hard to believe I have now been working for a little over seven months, and I am still no closer to being prepared for those weird and wonderful cases.

I've had no shortage of the routine cases however, particularly caesareans, for which I seem to be cursed for cows to be down. The last time I broke this trend was way back in October, when I had three caesareans in a weekend, all in darkness, but all standing thankfully. This was rather unfortunately followed by a breakfast meeting at Zam on the Monday morning – safe to say I wasn't overly interactive at that one!

Alongside the varied and challenging clinical work, I have recently been getting more involved in the client training and herd health services we offer. I've just taken responsibility for producing a monthly report from some of our dairy clients' milk recording data. This has given me an insight into how each farm is performing, and flagged up production issues that aren't necessarily seen on farm as sick cows. It's also a great opportunity for discussion when out on farm doing other things. We've recently set up an in-house lab with some cool new bits of kit, meaning

we can rapidly turn-around worm and fluke egg counts and do our own mastitis cultures, which is proving really interesting.

Although a few of our clients are well into lambing, the majority don't start until March or April. We have been running our lambing courses for anybody who feels they need a refresher or some pointers on the basics of lambing time before it all starts. These have been really popular this year and we've had to add two extra days. At the last course, we were lucky to time it perfectly, with a live demonstration of a difficult lambing in the shed next-door.

We are expecting to be busy in the next few weeks, with lambing and our spring calving herds getting in full swing. I've thoroughly enjoyed my first few months as a farm vet, and find myself as part of a knowledgeable and motivated team of farm vets, who never hesitate to offer advice and support – as a couple have discovered at rather unsavoury hours of the night... Sorry about that guys!

About me

I graduated from Nottingham in July 2015, and started work here in Cheshire just a week later. Having grown up in a sheep and beef farming family in the North Pennines, I was always farm-focused through my time at university. I was lucky enough to get the job with Wright and Morten, working in solely farm practice. Our day-to-day work is largely dairy based, however there is a good balance of sheep and beef work mixed in, which I find particularly interesting.

In September 2015 I started the XLVets Farm Graduate Scheme which involved an eight-day crash course for all aspects farm vetting. This really spurred my interest in how we can offer more to our beef and sheep clients, as with the unpredictability of the livestock industry there is increased need for efficiency.

Outside of work I enjoy shooting, getting back up to the family farm and working my unruly cocker spaniel.





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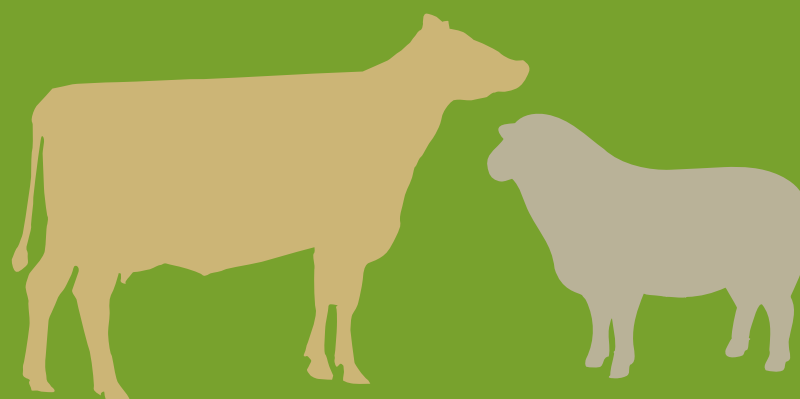
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