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WINTER 2016/17

Livestock

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MATTERS

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Prolapse in breeding ewes and Entropion in young lambs

Herd health

Controlling digital dermatitis





ENGLAND



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WINTER EDITION

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THE EDITOR

Welcome to the 'Winter' issue of Livestock Matters

Hi, I'm Gemma and I'm the Farm Brand Manager for XLVets, and the new editor of Livestock Matters. Farming is in my blood; my family farm in North Devon, I'm a graduate of Harper Adams and I now live with my partner Simon, also a Harper Adams graduate, on a dairy farm in Cumbria. I'm looking forward to my new role as Editor.

The purpose of our magazine is to demonstrate the benefits of successful partnerships between vets and their clients. Our XLVets veterinary practices want nothing more than happy, healthy animals. Healthy animals are easier to manage, more productive and more profitable.

In this issue we discuss various aspects of fertility; we examine the benefits of using written protocols and thorough pre- and post-calving checks to reduce calving intervals. We discuss the problem of vaginal prolapse in ewes and consider some of the

innovative breeding technologies now available to help farmers improve the genetic capability of their stock. We also provide some practical advice on the control of entropion in young lambs and digital dermatitis in dairy herds.

I hope you enjoy our Winter issue of Livestock Matters.



Gemma Ayre
Editor



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Save the date!

Bishopton Vets unveils stunning charity calendar in aid of Mind

Bishopton Veterinary Group has launched its new Farming Charity Calendar for 2017 after hundreds entered its competition to capture Yorkshire farming at its best.

All proceeds from the sale of the calendars are going to the mental health charity Mind which has helped both clients and employees of the North Yorkshire practice over the past year.

The calendar is the result of a hugely successful Facebook photography competition which attracted hundreds of outstanding photographs of farming across North Yorkshire to be included on the Bishopton Farm Team Facebook page. Narrowing the photographs down to a mere thirteen proved so difficult the judging team included a collage page on the reverse for additional shots.

The calendar was the brainchild of Farm Vet Dan King, who felt it would be a great way to show off some fabulous Yorkshire farming scenes whilst raising much-needed funds for the national charity.

Dan said: 'It was incredibly hard to narrow down to the final shots but we think they really show North Yorkshire farming at its best. We chose to support Mind as it is an incredible cause that helps the one in four people in the UK who experience a mental health problem every year. The money raised will fund their vital work including the Mind Infoline.'

Charlotte Drake, Community Fundraiser for Mind, added: 'Take Notice is one of the five ways to wellbeing. This calendar focuses on the beauty of nature and taking five to appreciate its wonder and how it is captured in these photos is sure to make you smile. We want to thank Bishopton Veterinary Group for raising awareness and funds for our important work in ensuring everyone with a mental health problem gets the respect and support they deserve.'

The calendars are available to buy at the Bishopton Veterinary Practices in Ripon, Pateley Bridge, Easingwold and York, priced at £10

each. They are also stocked at the following outlets: Ripon Farm Services, Ripon Agricultural Supply Services, J Todd & Son, Green's Country Store, Mole Country Valley, Houseman Contractors and York Auction Centre. Many thanks to all of the above for their support.

If you require any further details, please contact Bishopton Veterinary Group on 01765 602396.



Leading the way in innovative breeding technologies to bring the most to your herd.

As you'll read on pages 13 and 14 of this edition of *Livestock Matters*, one of the latest breeding techniques for cattle is Ovum Pick Up (OPU) and In Vitro Production (IVP). This has been developed in the UK through an Innovate UK funded collaboration led by Paragon Vet Group, involving several other XLVets member practices, Semex, and academic partners at the Universities of Kent and Nottingham. We have a nationwide network of 6 OPU teams and 12 transfer teams to deliver this technology to a specified quality controlled standard within a newly formed company, Activf-ET. (www.activf-et.com).

The exciting cutting edge technology of embryo biopsy and genomic analysis as described in the article will also soon be available through the same network, where biopsies from embryos are taken and sent for genomic analysis. This will allow a rapid increase in the speed of genetic progress without any manipulation of the genome.

XLVets practices around the UK are also offering another powerful breeding tool, combining genomics with vet supported breeding consultancy. The world's leading genomics test, CLARIFIDE® from Zoetis has been licensed for the first time in the UK as a veterinary-led genomics consultancy package. Led by RAFT Solutions and Synergy Farm Health, four XLVets practices

are now delivering genomics advice across the UK, providing information on the production, health, milk quality, fertility, feed efficiency and longevity of the animal.

Through consultancy and mentoring, a CLARIFIDE® vet will work with the farm team to evaluate their current genetic base, set farm specific breeding objectives and assess the likely response that can be expected from an investment in genomic testing. This is changing the way dairy producers make management, selection and breeding decisions on farm (www.clarifide.co.uk).

Another Innovate UK funded project delivered through RAFT Solutions, whose parent practices are both members of XLVets,

was to develop a quick and powerful semen analysis tool – this has now been rolled out as SemenRate. This provides objective analysis of bovine, equine and porcine semen (fresh or frozen samples as needed), which is a vital tool for management of the whole breeding package, addressing the quality of the semen used on farm. (www.semenrate.co.uk)

So in the ever reaching goals and drive for efficiency, these innovative breeding technologies are now accessible – for all herds.

Please talk to your local XLVets practice for more information.





Veterinary surgeon **James Marsden**

XLVets practice **Shropshire Farm Vets**



James Marsden BVSc DBR MRCVS,
Shropshire Farm Vets

Dairy unit efficiency improves further with holistic approach

Three years ago, Shropshire dairy farmer John Wigley realised that despite some good performance figures, there was scope to further improve his herd's fertility and the efficiency of his unit.



James Marsden (left) with his vet colleague, Sean Hughes.

Farming at Drenewydd Farm near Oswestry, John runs a 330-cow herd, which is grazed from the start of March, before being completely housed by 20 November.

John also wanted a change of veterinary practice, one that could provide a different approach. He knew he needed a better system to help with herd management, particularly fertility.

John explains: "I wanted to reduce the calving interval and increase the pregnancy rate. Herd fertility was variable but I didn't know why."

So in late 2013, he moved over to using the services of Shropshire Farm Vets. Since then herd fertility has improved, and more milk is being produced per year, despite adding Jersey genetics into the Holstein herd.

Shropshire Farm Vets' James Marsden explains: 'Fertility is a key driver of profitability on dairy farms.

'John's herd was already performing well, with a pregnancy rate of 20%. But there was scope to improve the submission rate of 50%.'

John was prepared to look at as many different areas as needed to get the herd's performance to the level of efficiency he wanted, as quickly as possible. So the vets have adopted a holistic approach to the challenge, and looked at nutrition and breeding, as well as instigating a series of management protocols for consistency.



John Wigley runs a 330-cow herd in Shropshire

Breeding strategies

At the same time as his move to Shropshire Farm Vets, John also changed his herd's breeding plan. John explains: 'There were some underlying problems – feet, fertility and durability. I needed a smaller cow, suitable for a grazing system.'

In order to accelerate change, he crossed all heifers and cows with Jersey genetics for one generation. At first using a bull, and then switching to AI. The next generation will be put back to Holstein genetics more specifically suited to grazing systems.



Jersey genetics have been added into the herd to create a smaller cow suitable for grazing

The herd's calving pattern has also been altered. There had been some problems with calf health, due to limitations of the buildings. So now breeding is organised so that no calves are born between early December and end of February, to minimise pressure on housing. John manages his culling to ensure sufficient milk for his contract.

'Ideally I would like to block-calve over a 6-12 week period,' says John, 'but it's not currently possible on my milk contract.'



Breeding is planned so that no calves are born for 3 months of the winter

James adds: 'The farm's heifers are reared off-site making heat observations difficult. So heifers are now synchronised so that they calve in April and August, which helps John with his milk profile. It also helps ensure first calvings take place around the optimum age of 24 months.'

Heat detection in the main herd has been improved with the introduction of activity collars.

Fertility factors

Metabolic profiling was carried out to identify any nutritional factors that were

limiting fertility, health or productivity. The results revealed a shortfall in selenium levels. This would have been having a negative impact on fertility. So selenium is now being supplemented in the form of a liquid minerals product, added to the water troughs.

The herd receives fortnightly fertility visits from the practice. James explains: 'As vets, we can sometimes look back at a farm's records and see times of the year where fertility has slipped. This can often be a consequence of our visits being postponed because farm staff are busy with seasonal jobs.'

John admits this has been the case at the farm in the past, and is now giving the fertility visits the priority, even if busy with silaging.

Benefits of better fertility

Today, thanks to a holistic approach and a number of changes made across the board, both fertility and performance have improved even further: pregnancy rate has increased to 28% (from 20%) and submission rates 65% (from 50%).

The number of cows served by 100 days in milk has increased from 86% to 92%, and the number in-calf has increased from 41% to 64%. The farm is also running with 4% fewer involuntary culls.

With more cows getting back in-calf more quickly, John now has a surplus of heifers to sell. He adds: 'The herd's replacement rate is 22%. But with no shortage of heifers coming through, I've now got the luxury of only serving cows to dairy straws once, and then switching to beef so we can produce more beef calves.'

'However TB is a continual worry, and we are not set up to keep a lot of calves on. We've been shut down once, 2 years ago, so we always consider it's a possibility.'

The grazed Holstein herd used to average a yield of around 8,000 litres/cow but with the Jersey-crossing it has dropped by around 1,000 litres/cow.

John adds: 'As we feed to yield in the parlour, then we are feeding fewer concentrates now.'

'And since cows are now getting back in-calf more quickly, we can afford to make less milk per lactation. So our annual milk production is not down as much as milk yield per se.'

Protocols and Systems

John believes management is even more important in larger herds: 'We needed a system, and we didn't have one. So we were fire-fighting all the time.'

James and his Shropshire Farm Vets colleagues have created written protocols for John and his team of three staff, making jobs process-driven with less room for error.

Vet Sean Hughes adds: 'Fertility here has pretty much been nailed! Going forward, we can analyse the data and look to see where we can reduce costs further.'

'One area to focus on next is selective dry cow therapy. A lot of cows will be dried off in February and this would be the time to teach those working in the milking parlour the appropriate hygiene procedures and cow selection. It's another area that requires a written protocol so that everyone follows the process consistently.'

Going forward

John adds: 'When milk price is down, it's fundamental to focus on feeding, fertility and hoof care. We need to be consistent and keep plodding away. And we need to be working with the right vets with the right attitude.'

James adds: 'As vets, we always want to work with our clients in a partnership, like we do with John. We all need this farm to be profitable! And for that we need efficiency in the herd.'



Working in partnership to improve herd efficiency and ultimately farm profitability



Jon Reader, BVSc DCHP MRCVS, Synergy Farm Health

Footbathing tips to help keep digital dermatitis under control

Once digital dermatitis is present in a herd, then it will never go away. Active cases will require individual attention, and once the lesions have healed, then regular footbathing is the only way to keep it under control. Here, Synergy Farm Health's Jon Reader gives some advice on controlling the disease and maximising the effectiveness of the footbathing operation.

Disease detail

'Digital dermatitis is caused by a type of bacterium known as *Trepinenes*, which lives in the lesions of the foot,' explains Jon.

'On dairy farms, it is spread in slurry. So infection levels and lameness can to some extent be limited by minimising the time cows spend with their feet in slurry. For example, it may prove beneficial to increase the frequency of scraping the yards.

'Where cows are turned out to grass in the summer, it may seem to have disappeared. But it hasn't. It will be deep in the tissues and once housed, clinical cases will start to be seen again.

'The infection causes lesions which are classified according to their stage of development. The key ones are: M2 - red raw active lesions which need individual treatment (see Figure one), and M4 - healed up lesions.

'M2 stage lesions will require individual attention: an antibiotic spray, specifically prescribed for the purpose, will need to be applied for three days. Alternatively topical treatments such as copper-based pastes can be used.

'There is some debate as to the merits of bandaging feet, once treated. This can be useful for the first few days to give the active ingredient in the product used, time to work, but bandages should not be left on for weeks.

'The aim is to get your herd's feet to an M4 stage, and keep them there.

'For this, footbathing is needed: regularly, all year round, effectively, and for the whole herd - not forgetting dry cows and heifers. Ideally, it should be done every day or at least five days through the week.

'And to maximise success, footbathing needs to be made as easy as possible for farm staff, so it becomes a routine.



Veterinary surgeon **Jon Reader**

XLVets practice **Synergy Farm Health**



Figure one. An M2 acute lesion - active infection requiring individual treatment

Footbath designs

'The best type and design of footbath is one that is easy to put in place and fill, and that allows good cow flow. They don't need to be expensive, to be good.

'Cow flow can be improved by putting blackout panels either side. Cows need to be able to get some grip on the bottom of the bath: a good non-slip surface is ideal, and rubber matting in the bottom of the footbath may help.



Figure two. A non-slip surface on the bottom of a footbath

'By having the footbath permanently in situ, then cows won't panic and dunging in the bath can be reduced. This will prevent deactivation of the active ingredient by organic matter.

'The longer the cow's foot is in the bath, or the more dunks of the foot, the better. The aim is to have at least two dunks for each foot - so for most dairy cows a minimum length of 3m is needed. A longer footbath of 3.7m would allow three foot dunks.

'To ensure all of the cow's feet go into the bath, try to have sides that go straight up from the bath so there are no ledges which allow feet to escape the dunking.

'Also remember, that the footbath needs to be designed so that as the last cow goes through it, there is still a depth of at least 10cm of solution left. That's enough to cover the back of the heel.

Footbathing solutions

'There are a number of solutions which can be used in footbaths.

'But first off, the volume of the footbath needs to be known,' says Jon. 'Only then can the correct volume of water and concentration of product, be calculated.

'The possibility of evaporation over time, even more so in hot weather, needs to be borne in mind.

'One of the cheapest footbathing solutions is formalin. But this degrades over time, and has a half-life of two and half days. So it's important to make sure that not only the right concentration is used at the start, but also to replace the solution if it has been there for more than a day or two.

'But beware: formalin has recently been re-classified as a probable carcinogen. This means it must only be used by a trained professional person, wearing appropriate PPE equipment - mask, gloves, goggles.

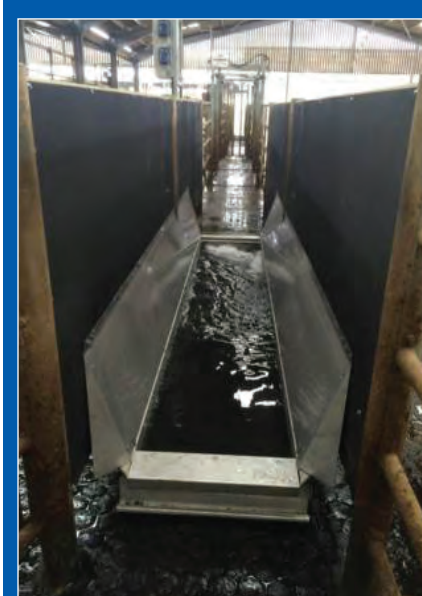


Figure three. No ledges for feet to escape being dunked, and blacked out sides

'Farmers and farm managers should note that it is the responsibility of the employer to ensure their staff abide by this legislation. We don't yet know what the long term effects of exposure are.

'Copper sulphate is another popular choice, although being a heavy metal, there are major concerns relating to disposal of the footbath solution. However, adding an acid into it, like sodium bisulphate which is used in swimming pools, will make the copper more available, so less can be used in the first place.

'De-ionised water may become an option in the future. It is used in human medicine. It is an effective quick-working disinfectant and the breakdown product is harmless.

'There are also a number of branded products available; these can be based on tea-tree oil, aloe vera, organic acids, or copper. Antibiotics should not be required in footbaths in the present climate, and the need for them suggests that footbathing regimes need to be re-evaluated.



Figure four. A very wide footbath has been built to speed cow flow for a large herd.

Keeping it out!

'If a herd is fortunate to be free of digital dermatitis, then biosecurity measures need to be followed to keep it that way: minimise the buying-in of animals, or at least purchase them from farms similarly clear of the infection. When animals arrive on the farm, examine their feet and footbath them.

'Also be aware, that the bacterium can be spread on foot-trimming equipment, so this should be disinfected between cows.'



Synergy Farm Health vet Jon Reader discusses digital dermatitis and footbathing at a workshop held as part of an XLVets farmer conference on Dairy Efficiencies, which took place at Harper Adams University College in September 2016.



Veterinary surgeon Victoria Fisher

XLVets practice Farm First Veterinary Services



Victoria Fisher BVMS MRCVS,
Farm First Veterinary Services

A pressing issue – vaginal prolapses in sheep

Lambing time is fast approaching us, as are the problems associated with the pre-lambing period, including vaginal prolapses. These are a common condition of British sheep farms which occur when a ewe pushes her vagina out of her vulva. A vaginal prolapse appears as a smooth, red mass varying in size from a tennis ball to a melon. On examination, the cervix can also be found as a small opening, as illustrated in Figure one below.



Figure one. A vaginal prolapse

Identifying early signs

Most ewes will prolapse in the last month of pregnancy. Early signs of a ewe prolapsing are similar to the signs of the early stages of labour and include:

- Isolation away from the flock
- Stealing lambs
- Nesting behaviour/pawing at bedding
- Bleating
- Abdominal pressing or straining

Treatment options

Vaginal prolapses should be replaced quickly to prevent further trauma and tears in the vagina. Also, if the prolapse remains out for a prolonged period of time the blood flow to the tissue can be reduced causing tissue death; the prolapse turns purple/black in colour and becomes dry, fragile and easy to damage.

Ideally, a ewe should be taken to a veterinary surgeon for treatment as they can administer an epidural (local anaesthetic injected into the spinal canal) which numbs the area around the vulva and reduces the ewe pushing, which eases replacement of the prolapse. But you may wish to replace the prolapse yourself following these steps:

1. Clean It:

Wash the prolapse with plenty of clean, warm water containing a suitable antiseptic or disinfectant. Ensure contamination such as muck and straw are removed.

2. Check It:

A thorough inspection of the prolapse should be made to check for any tears or signs that the ewe is trying to lamb: water-bags or legs/tail may be felt passing through the cervix. In either case, seek veterinary advice. If intestines are visible through a tear, euthanasia is advisable.

3. Lubricate It:

Cover with lubricating gel.

4. Replace It:

Always handle the prolapse carefully to avoid damage, try using either the flat of your hand or a fist. With many prolapses the urinary bladder has actually flipped up inside the prolapse, blocking the neck of the bladder, if you gently lift the prolapse up, towards the tail, this often allows the ewe to pass urine and the prolapse will reduce in size. Then using gentle pressure you can push the prolapse back into the ewe. Often a ewe will continue to strain during replacement, but avoid pushing harder against her, instead just use enough pressure to stop the prolapse coming back out when she strains, then when she stops continue to replace it.

5. Keep It In:

Once you have successfully replaced the prolapse, there are three ways to keep it in the ewe:

- **Harness (shown in Figure two below)**

These are designed to apply pressure around the vulva and prevent the prolapse recurring. These should be fitted correctly and checked regularly to ensure they do not cause sores. Harnesses should be loosened or removed around lambing to allow the lambs to pass.



Figure two. Harnesses should be fitted correctly and checked regularly.

- **Spoon/T-Piece/Retainer (shown in Figure three below)**



Figure three. A T-piece retainer

This is a T-shaped device that is inserted into the vagina and then secured to the ewe using string. Always ensure that the device is cleansed and disinfected prior to insertion. In most cases the ewe will be able to lamb past the spoon, but ideally it should be removed when lambing occurs.

- **Buhner Sutures (Under local anaesthetic only)**

This is where sutures are placed into the vulval skin and pulled tight, so that only 2 fingers can pass through. If these sutures are used they must be loosened at lambing otherwise the lambs may not pass, or the ewe will tear the sutures out causing severe damage to the area. See Figure four below.

6. Inject her:

Affected ewes should be given a broad-spectrum antibiotic and a painkiller to help reduce infection.

7. Mark her:

Vaginal prolapses are highly repeatable, so these ewes should be marked permanently (marker spray or ear mark/tag) and removed from the breeding flock.



Figure four. A sutured ewe prolapse

Prevention

There are several reasons why ewes may prolapse prior to lambing; these are outlined in the table below with suggestions for control.

Cause	Control
High body condition score	Appropriate nutrition
Carrying multiple lambs (twins/triplets etc)	Scan ewes/appropriate nutrition
Bulky diet	Avoid a high root crop diet in late pregnancy
Lameness (increases lying down time)	5 Point lameness control plan
Lack of exercise	Effective housing
Low blood calcium	Appropriate nutrition

Your vet will be happy to discuss any aspect of vaginal prolapses with you.



Veterinary surgeon	Hannah Batty
XLVets practice	Lambert, Leonard & May



Hannah Batty BVM BVS MRCVS,
Lambert, Leonard & May

Monitoring transition cows has reduced LDAs and improved herd fertility

Left displaced abomasum (LDA) used to be a regular occurrence in the Blood family's dairy herd at Hankins Heys Farm near Whitchurch, in Shropshire. But now, they are rare. This is due not only to changes in diet and management, but to the instigation of pre- and post-calving checks, and a monthly report compiled by the farm's veterinary practice, Lambert, Leonard & May (LLM).

Duncan Blood has expanded the herd from 250 milking cows in 2009, up to 450 today and now employs a herdsman Phil Baddiley. The herd receives weekly fertility visits by LLM vets, either Hannah Batty or Charlie Lambert.

Hannah explains: 'There was an issue with fat dry cows on the farm: these were becoming ketotic post-calving, and were at risk of LDAs. Duncan had also commented that there were a lot of metritis cases occurring in the week following calvings. And at our weekly routines we had been finding a lot of cows with "whites".'

The team at Hankins Heys were not only keen to reduce the LDA incidence but also to get the cows cycling and ready for service again. So a year ago Duncan signed up to a monthly transition reporting service provided by LLM which would put a focus on the herd's health, flagging up potential problems and enabling the effects of any changes to be seen and monitored. It includes a variety of checks made on the dry cows by LLM Vet Techs, and on the fresh calvers by himself and his herdsman.

Dry cow monitoring

The dry cow shed is split into two with the left hand side reserved for cows close to calving (Figure one). Duncan explains: 'We've chosen this particular shed because there's a lot of people flow past it, and so observations are good...and I can also see the close-up cows from my bedroom window!'

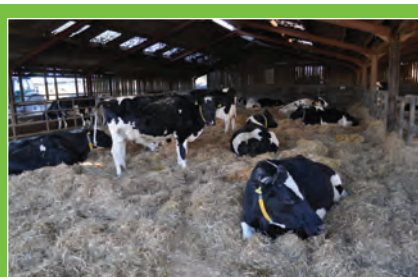


Figure one. Close-up dry cows are located down one side of the shed where they are easy to observe

Dry cows, in the last three weeks pre-calving, are assessed by one of LLM's Vet Techs. Measurements of body condition score and rumen fill are recorded (Figure two).



Figure two. Dry cows are assessed for BCS and rumen fill in the last three weeks prior to calving

In addition, measurements of the lying areas, and space at the water and feed troughs each side of the shed have been taken to calculate a maximum stocking density. The herd calves all year round, with a slight peak in the autumn. So for some of the year, to avoid overcrowding, Duncan will keep the far-off cows out of the transition yard, and only bring them across three weeks prior to calving.

The transition diet has also been changed in a bid to prevent cows becoming over-conditioned. Duncan adds: 'We have more straw in the diet these days - nearly 4 kg/cow/day. We've recently changed from wheat to barley straw, and I've noticed that intakes have gone up. From the Transition Check report, I can also see that rumen fills have improved - from 3s and 4s, to lots more 4s.'

Hannah adds: 'With the monthly recordings of BCS, the most at-risk animals can be identified and monitored accordingly. Any extremely fat cows are now receiving a pre-calving bolus to help reduce the risk of post-calving ketosis and the associated metabolic diseases.'

Fresh cow checks

Fresh cows are housed together at a low stocking rate on straw. Duncan explains: 'We used to keep them here for three weeks but we had problems with mastitis, so now they only stay for one week. Fresh straw is added daily and the area is completely cleaned out every two weeks.'

The fresh cows are monitored by Phil who follows a Fresh Check protocol drawn up together with LLM: on Day 4 post-calving, cows are checked for temperature, 'cleanliness' and ketone levels.

Metritis is a systemic infection. So if dirty cows are found, then a treatment protocol is followed consisting of an antibiotic and an NSAID. These cows are also brought to the attention of the vets on their routine visits.

Ketones are produced when cows are short of energy and mobilise their body fat reserves to support milk production. These can be detected in several ways: one of which is to smell the acetone (pear drop smell) of excess ketones on a cow's breath. But the most objective way is to use a meter to measure BHB levels in a small sample of blood (Figure three). At Hankins Heys Farm, this is the method used to provide a very accurate measure of the situation.



Figure three. A ketone meter is used to measure blood level of BHB in cows 4 days post-calving

A BHB level of over 1.0 is indicative of sub-clinical ketosis. In such cases, the cow is given energy in the form of propylene glycol, administered orally by syringe, for 3 days.

Hannah adds: 'But it's about more than just treating the cow, Duncan and Phil also look to find a reason why this occurred, so it can be prevented next time. Was it because she was fat, or had metritis, or a short dry period? Or was lameness preventing her from getting up to the feed trough? Is it just one cow, or is the whole group sub-clinically ketotic, in which case, why is that?'

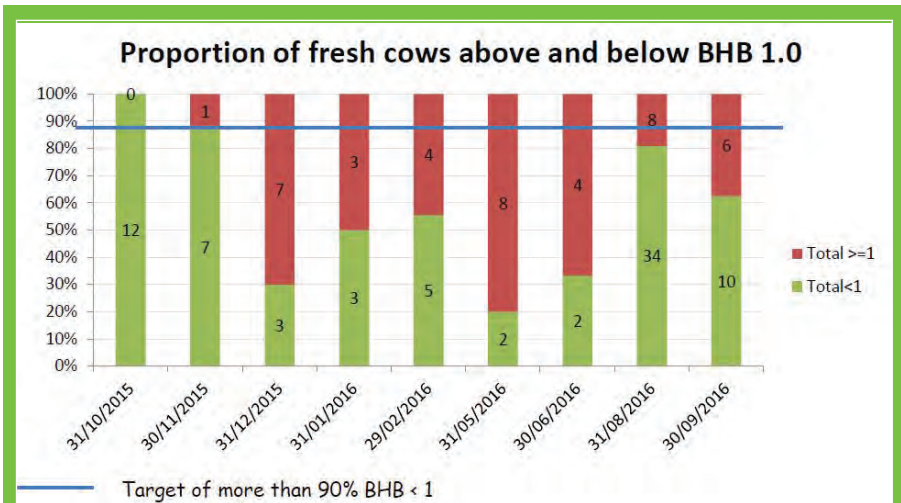


Figure four. Shows the BHB results over the past years

Figure four shows the BHB results over the past year. In May and June, the majority of the cows were found to be sub-clinically ketotic. Hannah explains: 'Although the stocking densities were appropriate, the transition ration needed pushing up to the cows more frequently. With this change, and the switch to barley straw, the ketosis problem was largely resolved.'

She adds: 'By screening the fresh cows at day 4, then metritis cases can be identified and treated all the sooner. At our weekly routine visits, my colleague Charlie Lambert and I are now seeing far fewer cases of endometritis in cows 21 days post-calving.'

'So it has stopped the vicious cycle of dirty cows which have a delayed conception and are then prone to putting on weight whilst "empty". These cows remain over-conditioned through lactation and up to the point of calving, when they are then predisposed to ketosis...which increases the risk of retained

foetal membranes and metritis....so they don't get back in-calf so quickly....'

Measure, RECORD, review

The data from the monthly dry cow assessments made by the Vet Techs, and the results of each month's ketone levels are combined into a Transition Check report that compares the figures against pre- and post-calving targets.

Hannah says: 'By not just measuring, but also recording the information then we can look back and see patterns and trends. This helps us understand what happened and why, and then make changes, the effects of which can be monitored.'

'Duncan takes a lot of his management information from his computer program. The protocols followed here wouldn't work on all the farms I go to. Everyone needs a system that works for them, that's the key.' (Figure five).



Figure five. Hannah, with Duncan Blood, during a pre-calving check



David Black BVM&S DBR MRCVS,
Paragon Veterinary Group, Cumbria



Neil Eastham BVM&S DBR MRCVS,
Bishopton Veterinary Group, North Yorkshire



Mark Burnell BVetMed CertCHP DBR MRCVS,
Synergy Farm Health, Dorset

New breeding technologies speed herd improvements

Commercial - not just pedigree - beef and dairy farmers can benefit from some new breeding technologies and speed herd improvement programmes. These techniques are now widely accessible - both practically and financially.

Advances in breeding

AI was the first breeding technology to be developed, and became commercially available in the 1950's.

Veterinary surgeon	David Black
XLVets practice	Paragon Veterinary Group, Cumbria



David Black of Paragon Vet Group explains: 'Before then, the thought of not having a bull on the farm must have seemed a far-fetched idea. Indeed the use of AI took a while to catch on, but now it's universally used.'

In 1950, the first calf was born from the technique, MOET (Multiple Ovulation and Embryo Transfer) which allows multiple calves to be born from inseminating one heifer/cow, and collecting the fertilised eggs for implantation into recipient cows.

David adds: 'This technique, commonly known as "flushing", was initially used by elite breeders, but has gradually become more widely used. It can be used in non-pregnant heifers and cows, and can be repeated every 6 to 8 weeks.'

In 1980, sexed semen became available, at a premium. 'This is becoming more reliable as semen sorting techniques improve, and now many of the top sires are available as sexed semen. It is appreciated by farms wanting to boost heifer replacement numbers, and is often selectively used on heifers in the herd, helping fast track the herd's rate of genetic improvement.

'More recently, there have been several developments of new technologies such as genomics and IVP embryos which will be beneficial to many breeding programmes on commercial farms today,' says David.

Below is an outline of how they work and what benefits they can bring to a farm.

Breeding from the 'best' heifers

How do you tell which young heifers are going to be the best to breed from, if they have no production history, as yet? The answer: use genomics.

Veterinary surgeon	Neil Eastham
XLVets practice	Bishopton Veterinary Group, North Yorkshire



Neil Eastham from Bishopton Vets explains: 'In genomics, instead of having to wait for performance data, a young animal's DNA can be analysed, and their genotype identified. From a genotype a reliable prediction of its genetic merit can be made early in its life.'

'In fact, genomic test results are significantly more reliable than traditional parent average values (typically 65% compared to 30%) as they reveal the genetic potential that an animal has actually inherited from its parents. The result is a lifetime of information from one test.'

'Genomic testing can provide information on the production, health, type, milk quality, fertility, feed efficiency and longevity of an animal. So with animals ranked purely on their genotype focusing on traits that are important to their farm, farmers can have greater confidence in management, selection and breeding decisions.'

'Plus with the genetic merit of a heifer known all the sooner, then ultimately the speed of genetic progress in a herd can be increased.'

Genomics for better health

Farmers have been selecting for production traits such as milk yield, fat and protein, in their breeding strategies for a long time.

Within the last year, genomics has enabled a new genetic index for Holstein cattle to be launched which identifies animals with better resistance to TB. So now bulls can be selected which will confer greater immunity against the disease to their offspring.

to fight disease. In fact, there is now very solid science to show that breeding for higher health traits will reduce the likelihood of cows developing mastitis, lameness or succumbing to diseases. As a consequence, the requirements for antibiotic treatments are reduced, and animal welfare improved.'

Faster herd improvement

A breeding technique which has now superseded MOET is Ovum Pick Up (OPU) and In Vitro Production (IVP).

IVP is the process of collecting unfertilised eggs directly from the ovaries of a donor cow (OPU) and then maturing, fertilising and culturing them in the laboratory to produce embryos for implantation into recipient cows.

Thus one way to differentiate IVP is that fertilisation occurs in vitro (in glass) rather than in vivo (in a living animal) as with MOET. (Figure one).

Paragon's David Black explains: 'IVP is basically the same technique as 'IVF' used in humans. But unlike the medical scenario where it is used only as a last resort to help couples have children, IVP is a technique that can be used on healthy fully functioning animals. It's not just for problem breeders.'

'IVP can generate many times more calves than conventional breeding - up to 30 per year! It requires minimal medical intervention, and can be used in immature and even pregnant animals. Sexed semen can be used, and the technique enables semen from several different bulls to be used in a short space of time.'

Through an Innovate UK-funded collaboration involving XLVets member practices together with industry and research partners, a breeding services company called ActivfET has been formed. (Figure two)

This company has produced more than 600 IVP embryos in the past year, with over 100 healthy calves born. On average, 30% of the oocytes collected go on to produce viable embryos; on implantation, pregnancy rates of 58% have been achieved, which is similar to conventional embryo transfer.

Soon to become commercially available, is a further and refined technique in which biopsies from embryos are taken and sent for genomic analysis. This allows the genetic traits of the embryo to be identified even before it is born, further speeding genetic progress. (Figure three).

Accessing new technologies

David adds: 'Back in the 1950s, AI was considered a very novel technique, and certainly not for everyone. But look at it now. Today, with farms under constant pressure to become more efficient to remain profitable, then the use of genomics and IVP in cattle breeding strategies is set to become just as commonplace, very soon.'

Farmers interested in accessing these new technologies should in the first instance, talk to their local XLVets practice. Both MOET and IVP can be carried out through breeding services teams within six XLVets practices across the country. Another XLVets exclusive is a consultancy service which helps farmers set breeding objectives for their herds and incorporates genomic testing.

Veterinary surgeon	Mark Burnell
XLVets practice	Synergy Farm Health, Dorset



Mark Burnell from Synergy Farm Health explains: 'If an animal had a better immune response system, then it would be better able

Breeding terms

Genotype - The measure of an animal's genetic makeup.

Genome - The entire complement of the animal's genetic material.

Genomics - The study of an animal's genome functions.

Genetics - The study of heredity and the variation of inherited characteristics.

Zygote - a cell that is formed when an egg and a sperm combine, i.e. a fertilised egg.



Figure one. With IVP, fertilisation takes place in the laboratory, not the cow. Here, fertilised zygotes are being moved between development medias, a key stage of the process.



Figure two. The laboratory at Paragon Vet Group where the oocytes collected from OPU procedures by the ActivfET teams, are sent to be fertilised.

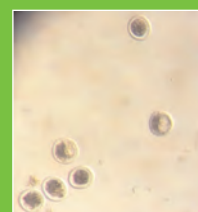


Figure three. Further advances in breeding technology will soon enable genomic analyses to be made even earlier, by taking biopsies from embryos like these shown here.



Practical Guide

Welcome to our 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.

Entropion in lambs

Katharine Blease, BVMS, CertAVP (Cattle), MRCVS,
Bishopton Veterinary Group, Ripon, North Yorkshire

Katharine is a large animal vet at Bishopton Veterinary Group in North Yorkshire and is the FarmSkills trainer for the Practical Lambing workshops aimed at supporting local farmers, smallholders and shepherds around this area. This article focuses on Entropion in lambs; what are the clinical signs and the methods of treatment available.



What is it?

Entropion is a common condition of lambs, particularly white faced breeds. The lower eyelid turns inwards resulting in the eyelashes making contact with the surface of the eye. This causes ulceration on the surface of the eye and if uncorrected can lead to blindness. Frequently both eyes are affected. The condition is present at birth or appears shortly after.

What to look out for?

Affected eyes will start to discharge fluid. Initially this will be watery but will become thicker with the resulting infection. The surface of the eye will start to turn pink and cloudy as ulceration develops.

Treatment

Simple cases can be treated by manually rolling the skin immediately below the lower eyelid in order to evert the eyelid. It may then be advisable to apply topical antibiotic ointment to prevent secondary bacterial infection and to lubricate movement of eyelid.

In more severe or recurrent cases a subcutaneous injection of 0.5mls of procaine penicillin into the lower eyelid can be used to evert the eyelid. A 21g needle should be used and the injection placed approximately 1cm below the eye. It is important to have an assistant securely hold the lamb during this procedure – please see **Figures one, two and three.**

Alternatively thin metal clips can be inserted to hold the eyelid in the correct position. These should be placed vertically. Always ask your vet if you are unsure on where to position these.

In severe cases, an elliptical strip of skin can be excised and the resulting cut edges stitched together – this is a veterinary procedure. Consult your vet if you think this may be required.

Prevention/Management

All lambs should be checked for this condition soon after birth and checked again at handling procedures such as castration/tail docking. The earlier a problem is identified the more likelihood there is of a full recovery with no lasting effects.

Entropion is a hereditary condition and therefore the parentage of lambs should be investigated. If it is possible to identify a problem ram this animal should be culled.

Katharine Blease,
BVMS, CertAVP (Cattle), MRCVS
Bishopton Veterinary Group

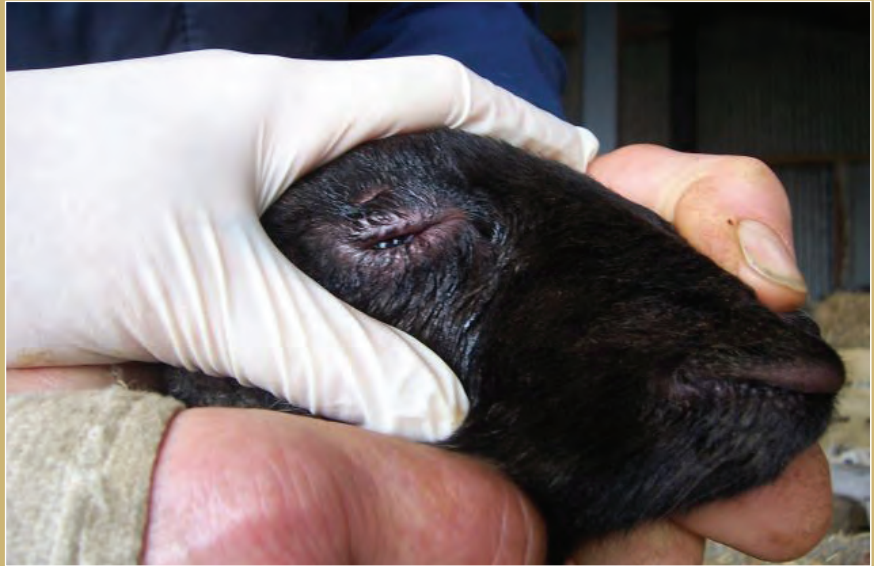


Figure one. An affected eye



Figure two. Ensure you have assistance to hold the lamb



Figure three. Inject approximately 1cm below the eye



GRADUATE DIARY

Matt Raine, BVMedSci BVM BVS MRCVS

Wright & Morten

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 of 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.



New sheep focus

It's been 18 months since I graduated and started working at Wright & Morten.

The hardest part of working in practice as a fresh graduate, is to believe in yourself, and to have the confidence that you are making the right decisions. Fortunately, these days, it's easy to contact a fellow vet from the practice for their support or advice. I'm also still in touch with a lot of my University friends, and we all have this same challenge.

It can take a bit of time, but confidence does grow as you get more experiences and successes under your belt.

One case which gave my confidence a memorable boost was a hernia replacement in a Limousin bull calf. I'd been called out by one of our clients to calve a Limousin suckler cow. They are located very close to the practice. We have a joke about the cows in their herd: they're 'too posh to push'! It was the fourth year that this particular cow had needed assistance at calving, and it wasn't because of a large calf.

Anyway, I calved a bull calf without much trouble, and returned to the practice. But I'd not even sat down before the farmer rang to say the calf had stood up and its guts had spilled out of its navel. So back I went to the farm. I'd never seen, or been taught how to do this operation, so I relied on transferring my

knowledge of other operations and techniques....together with a bit of improvisation! The calf was less than an hour old, and the main focus had been on getting it to breathe. So I used a local anaesthetic, and carried out my first hernia replacement on this young animal, by myself. I'm delighted to say it has survived!

Another aspect of working practice that is always rewarding is when you make a farm call and give some advice or prescribe some treatments that then result in significant improvements either the same day or very shortly after.

For example, we've had a new sheep client, whose flock had been going lame. I was on his farm making the first introductory visit to get to know the farmer and his flock and what he wanted to achieve, and we got chatting about the lameness.

He took me to see 10 ewes that had been gathered into a treatment pen. I inspected their feet and diagnosed CODD (Contagious Ovine Digital Dermatitis). This was a different diagnosis and required different treatment from that prescribed by his previous vet practice – but this was probably because they hadn't actually been out to see the sheep.



We just talked through the treatments required. That afternoon, he texted me to say there were another 15 in the field with lameness...it was a small flock, and a third had gone lame! I rang him back and we instigated an intensive treatment regime. Just one week later, he told me he could only pick out lameness in a couple of sheep. It was great to have been able to validate his move across to the practice. And to do so quickly!

I'm going to become even more involved with sheep farmers now that I'm the practice representative in a new XLVets veterinary initiative called The Woolpack. This is a group of vets with a particular interest in flock health. We will be meeting twice yearly, and discussing topical sheep issues and sharing our different experiences.

At the last Woolpack meeting, hosted by the Paragon Vet Group in Cumbria, there were around 25 of us. We had talks from a consultant on pre-lambing metabolic profiling of ewes, and how best to interpret the results. The importance of different trace minerals was another area that was covered.

Sometimes, as vets, we see new diseases or health issues that just baffle us. At this meeting, one of the vets from the south west told us about cases of sudden death in ewes about to lamb. Post-mortem analyses would reveal two dead and very smelly lambs inside – indicating they had died some time before the ewe did. Although various diagnostic tests

have been done, they have yet to identify any causative agents. We are calling this 'rotten lamb syndrome'. We need to find out what's causing this, and so everyone will be talking to their colleagues and we will be keeping a look-out for any similar cases. We'll be reporting any findings back to the group, and hopefully by pooling the information on any new cases, we might be able to determine the cause(s) and develop strategies for its prevention.

Here at the practice, I've taken on the setting up of some farmer discussion groups. We are starting up three different 'Flock Clubs': smallholders – for whom the focus will be on practical skills, husbandry and management, and then commercial farmers (typically, indoor lambers) and hill breeders. With these latter two groups we will be performance monitoring and benchmarking.

Historically, sheep farmers used to consider the vet a big cost. And some still do. But more and more farmers are changing their views. Health planning for flocks can save a considerable amount of money and/or prevent losses later. We are getting a lot more requests for tests, e.g. faecal egg counts prior to worming, disease surveillance, and to check trace element levels. This type of vet involvement, though not giving an immediate reward, can significantly improve the farm's performance over the year.

As a profession, vets are becoming a lot more focused on preventative medicine. Antibiotic use is under scrutiny. We are seeing more restrictions from milk buyers, and supermarket policies are all pretty much on a par with each other now. There has been a lot of media focus on farmers and how they are using antibiotics. And now the spotlight is spreading out to vets, and we will need to be able to justify the antibiotic treatments that we prescribe.

For me personally, in 2017, I'm planning to carry on building up my bank of experiences, across all species. As veterinary surgeons, we have an important role to play in maintaining and improving the health of our national herd and flock. Thanks to our farmers, our food is produced to the highest of welfare standards, and vets have a pivotal role to play helping farmers improve productivity and profitability. Their success will be our success; our futures are inextricably linked.

I hope that 2017 provides me with the same variation and challenges as 2016 has, and I get continued opportunity to develop my skills beyond the day-to-day. I'm lucky to be in a practice, and also the wider XLVets group, which places focus on staying at the forefront and offering the best veterinary care possible. In this environment it is easy to access any training I wish so I can push my career in the direction I want, with full support of the practice behind me.



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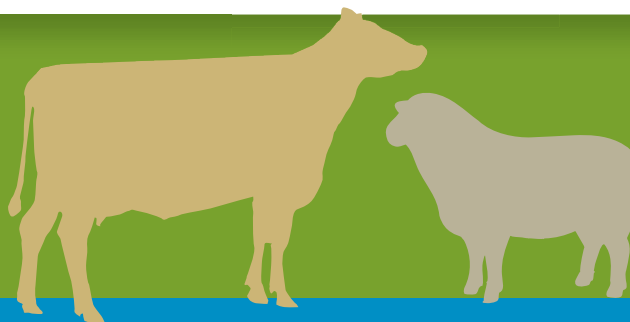
TB Biosecurity Workshops

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| 18 January 2017 | Sparsholt College, Hampshire |
| 26 January 2017 | Brooksby College, Leicestershire |
| 1 February 2017 | The Royal Agricultural University, Gloucestershire |
| 15 February 2017 | Duchy College, Cornwall |
| 17 February 2017 | Hadlow College, Kent |
| 22 February 2017 | Moreton Morrell College, Warwickshire |

Please note dates are subject to change

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