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SPRING 2018

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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.

THE EDITOR

Welcome to the 'Spring' issue of Livestock Matters

In this issue we look at "feeding the calf" with vet Kirsty Ranson, Westmorland Veterinary Group. Kirsty explains that good management in the first three months of life is essential if calves are to achieve the required growth rates.

We also discuss strategies for managing a flying herd. Farmer Jimmy Pritt and vet Mike Thorne, Farm Vet Solutions explain how they work together to assure the health and performance of the herd.

This issue also contains a feature on worms. SQP, Mark Pass, Beeston Animal Health explains why monitoring faecal worm egg counts is so crucial for successful worm control. Mark explains the classifications of anthelmintics, how to test the efficacy of the drench, refugia and the importance of having a plan!

Finally we meet graduate Vicki Rhodes, Scarsdale Veterinary Group.

We hope you enjoy this issue of Livestock Matters.

Gemma Ayre
Editor

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Welcome Black Sheep Farm Health

Black Sheep Farm Health is a new, dedicated farm practice, serving farms in Northumberland and beyond who became a member of XLVets in January 2018.

"Our aim is to be a proactive farm animal practice that will help to improve farm profit, production, efficiency and animal welfare. Our intention is to provide an all-encompassing approach to farm veterinary services to support the local agricultural industry, focussing on preventative medicine. Everyone who works here, is fully immersed within the local farming community and has farming interests at heart." *Jenny Hull, Black Sheep Farm Health.*

The majority of the practice workload will be centred around **beef and sheep** with a small amount of **dairy cattle and goat** work.

Black Sheep Farm Health Dedicated farm vets

XLVets success at Cream Awards 2018

The Cream Awards aim to showcase some of Britain's brightest and best working in the dairy industry and 2018 provided another fantastic line up. The winners were awarded on the evening of 7th February 2018 at Chesford Grange Hotel, Warwickshire.

Congratulations to the following XLVet members;

*The **Friars Moor Vets** team for winning the Dairy team of the year*

***Synergy Farm Health** and their VetTech team for receiving a commendation in the Dairy team award*

***Tony Kemmish, St Boniface Veterinary Clinic** for being awarded Dairy Vet of the year*

*The **Lambert, Leonard and May** team for being awarded the overall award of the night - The Cream Award, the John Beckett Cup.*

Dairy Sheep and Goat Conference

Anthony Wilkinson

FriarsMoor Livestock Health

The third Dairy Sheep and Goat Conference was a great success! Some 120 delegates from the UK, Europe and Canada gathered at Congresbury, Bristol to hear a range of talks themed around "Youngstock and Replacement Rearing", the conference was organised by Friars Moor Livestock Health.

Dr Julio Benavides from the University of Leon and CSIC opened the conference with a talk on the Spanish sheep dairy industry and Johne's disease. Johne's disease can be considered an iceberg disease, where sheep developing clinical signs account for only a small percentage of infection within the herd and the larger submerged part of the iceberg represents those sub-clinically infected. Infected animals may or may not develop clinical disease and the reasons behind this are not yet fully understood, but are likely to be due to a shift in the host immune response. Vaccination is effective in reducing occurrence of clinical disease, but it does not avoid infection, so additional control measures are necessary.

Emily Gascoigne from Synergy Farm Health and Tom Garland from Burton Dairy gave an enthusiastic and beautifully timed joint presentation on sheep dairy replacement rearing at the farm. Colostrum management, meticulous hygiene and attention to detail are key to healthy replacements. Emily spoke about strategies to minimise antibiotic use in these units.

Yoav Alony Gilboa of Friars Moor's Dairy Sheep & Goat Consultancy gave a talk on tools available and used by the dairy cow industry to monitor milk quality and udder health, such as Somatic Cell Counts. There are differences between all three species and care needs to be taken with choosing the type of cell counting equipment, method and reference values. Yoav also described

current and future tests that might be able to accurately detect tuberculosis and Johne's disease.

Belmont Farm and Equine Vets were represented in the session on Kid Tracker, this was preceded by Professor Cathy Baumann from Guelph who described the goat kid mortality project that was started in the Autumn of 2017; This is a two phase study; phase one involves a farm visit evaluating stocking density and housing with questions on feeding, handling and rearing practices of kids. Phase two involves farms being followed for environmental ammonia, temperature and humidity data with post mortem of young kids that die on farm.

Matthew Pugh and Hannah Walford from Belmont Farm and Equine Vets gave the second part of the talk detailing their work monitoring growth rates observed in the kids, they described the development of the Kid Tracker programme on their clients' farms. Kid Tracker monitors colostrum intake, growth rates and level of disease in newborn kids.

Benchmarking is taking place and improvements in kid growth rates have already been seen.

Tyndale Vets were represented by Bryony Kendall, who talked about the development of a Goat AI service. Bryony described the different protocols used and results achieved. Sandrine Defeu of the French company Evolution described the French small ruminant A.I. service and the impressive changes in production that have resulted from this.

The conference was organised by a team from Friars Moor Livestock Health who have also set up "Dairy Sheep & Goat Consultancy".

The Friars Moor Livestock Health team

Kirsty Ranson, Westmorland Veterinary Group

Best practice: feeding milk to calves – the 'how' and the 'why'

Here, vet Kirsty Ranson from Westmorland Veterinary Group in Kendal provides a comprehensive 'best practice' guide on feeding milk to calves, and explains 'why' as well as 'how'.

Veterinary surgeon	Kirsty Ranson
XLVets practice	Westmorland Veterinary Group

"Good management and appropriate feeding of dairy calves in their first three months of life is essential if they are to achieve the growth rates required for breeding at the target 13 - 15 months of age," says Kirsty.

Colostrum

"Whilst in the womb, calves do not receive any antibodies via the placenta. Instead, they need an early feed of colostrum so that antibodies can be transferred in this milk from the dam to the calf.

"These antibodies need to be absorbed as soon as possible after birth, because changes in the calf's gut wall which are designed to prevent bacteria, will also prevent transfer of the antibodies.

"At the same time, the sooner the cow is milked, the higher the quality of antibodies in her colostrum - so that's another reason to feed the calf as soon as possible.

"Calves need to receive 10% of their bodyweight of colostrum in the first six hours - so a 40kg calf requires 4 litres, and ideally this should be fed in the first two hours.

"For most dairy cows which are on a good dry cow ration, colostrum quality should not be an issue. Usually, the bigger issue is that calves have not received enough colostrum early on. This can be checked by assessing the Total Proteins in the blood of calves in the first 7-10 days of life. This is one of the elements measured in the XLVets Calf Tracker scheme and helps identify if changes in newborn feeding protocols are needed.

"For the best results - if you have to calve a cow, then as soon as you have done, strip her out and feed the calf. Don't wait for calves to suckle themselves.

"Bottle-feeding a calf gives a better oesophageal groove closure than tubing. But it's more important to get enough colostrum in quickly, than the method used. If using a feeding tube, it needs to be cleaned after every calf, and for sick calves, a different tube should always be used.

Freezing colostrum

"Always test colostrum before freezing it! Use a colostrometer or refractometer for an objective assessment. Colour and thickness are not good indicators!

"Use 1 litre bags and mark the date and cow's ID. Put them into a fridge first, then they will freeze more quickly once in the freezer.

"Always thaw in warm water! Also, record which cow's milk goes to which calf so that if subsequently the cow tests positive for Johne's, its milk can be traced.

"Ideally colostrum should be fed for 3-4 days. But colostrum is only the first milking off the cow, e.g. 8 litres. So that leaves about 4 litres spare - store this in a bottle in the fridge to limit bacterial growth, and re-heat for the next feed.

"If anti-scour vaccines - e.g. for Rotavirus or salmonella - have been given to the calf's dam then the calf must receive their milk for at least four days to get the benefit of the vaccine.

Water is essential

"From day one, calves should have access to a bucket with starter pellets and one with water. If you don't make water available, calves won't eat the cake! It's like eating Weetabix without milk! Water is needed in the rumen - it will increase concentrate intake and therefore growth rate.

"Beware borehole water: calves don't tolerate high levels of bacteria so make sure it goes through a UV light first. And if it's not very palatable, then calves won't drink it.

Feeding whole milk

"Whole milk, naturally, has the ideal profile of fats and dairy proteins and is nutritionally the best feed for calves, with the least risk of causing nutritional scours. However, its nutritional quality can be more variable than milk replacers with the added risk of bacterial contamination.

"In the parlour, at least two dump buckets are needed: one for milk withheld due to antibiotic treatments or from Johne's positive cows - this must be thrown away. A second dump bucket is needed for the 'clean' whole milk for feeding to calves and which, for good hygiene, should also be a lidded bucket to prevent contamination from cow faeces.

Using a milk replacer

"Using a good quality milk replacer is the alternative to feeding whole milk. Calves can grow equally well on this, but they do need to be fed enough, and there can be a fine line to avoid scouring."

Kirsty recommends milk replacers with a crude protein content of 20-26% and fat 16-20%, with fibre close to 0%.

"The digestive tract of a young calf is designed to digest whole milk as its only source of nutrition. Vegetable protein is cheaper than dairy protein sources. However, trying to cut costs by buying a cheap powder can be a disaster as you are feeding something the calf is unable to digest and utilise as a feed source.

"The headline protein figures might look good, but look carefully at the label. Ingredients are listed in order of their inclusion level: ensure the first two are from dairy sources - e.g. whey, skimmed milk powder, not wheat or soy."

Which is best, skim or whey-based replacer? Kirsty explains: "Skim powder will contain the casein protein needed to form a clot in the stomach and will be highly digestible. However whey powder, digested in the intestines, contains a higher level of the amino acids required for growth and can also provide excellent growth rates.

"It's more important to ensure that the ingredients are good quality and processed in a way that prevents damage to them, than whether the powder is skim or whey-based.

"Our Calf Tracker scheme shows over-dilution - and therefore under-feeding - is still the biggest factor on some units where calves are under-performing.

"The target growth rate for calves in the first three months is an average of 800g/day. So they need to be receiving 900g/day of powder by the time they reach one week old. This is achieved when mixing replacer at 150g/litre and feeding 3 litres, twice a day.

"Some bag labels may suggest a lower feeding rate, e.g. 125g/litre, so as not to appear expensive. But this would supply only 750g/day, and calves will never achieve the required growth rates.

"In cold weather, feeding rates will need increasing, and the use of calf jackets is also beneficial.

"Ideally, milk should be fed via teat feeders, as with buckets calves can drink too quickly and then get rumen acidosis.

Hygiene tips

"The fatty residue left on milk buckets and feeder teats provides a great breeding ground for bacteria! It's important to prevent the build-up of this greasy slime, by keeping on top of cleaning the equipment.

"Buckets and/or teats should be rinsed after every feed, in hot water with some soap. Then, at least twice a week, they should be soaked in disinfectant or hot soapy water. An easy way to clean them is to use the water from the parlour washing as this will contain chemicals such as milk stone remover.

Like young children, calves have less resistance to disease than adult cattle. So foot dips at the entrance to the calf shed are advisable and calf rearers should have clean boots and clothes. It only takes 1g of cow dung from a Johne's-positive cow to infect a calf for life.

Routines

"Establishing a consistent calf-feeding routine is beneficial for both calves and rearers.

"For calves, the expectation that they are about to be fed is an important factor in making the oesophageal groove close so that milk is diverted straight into the abomasum and not the rumen. This reflex takes around five minutes to develop - so it's a good idea to mix the milk nearby, or instigate a routine that gives them the cue.

"Milk - whether whole or replacer - should be fed at calf body temperature. So mix the milk replacer at a slightly hotter temperature, as it will cool over time. The youngest calves should be fed first so as not to spread disease, and they also get milk closest to the optimum temperature.

"Never warm up whole milk by adding and diluting it with hot water! This stops it forming the clot in the stomach. Besides, water is needed in the rumen, not the abomasum.

"According to the Calf Tracker results here at Westmorland, those farms with written feeding protocols have the least variation in calf growth rates. Everyone feeding calves needs to understand its importance and follow the same practices. A written protocol - laminated and pinned onto the wall - is a good idea."

Veterinary surgeon	Ben Barber
XLVets practice	Synergy Farm Health

Ben Barber, Synergy Farm Health

Is bull selection geared to better finished cattle? Or better breeding dams?

Vet Ben Barber of Synergy Farm Health believes that when selecting new bulls for the suckler herd, attention can be so focused on terminal traits that the maternal traits often get overlooked.

"There's more to Estimated Breeding Values (EBVs) than looking at calving ease and growth rates," says Ben. "Maternal traits like age at first calving, calving interval, longevity and milk production are also important elements in suckler herds.

"After all, a suckler herd's performance is mainly dictated by its female members having the ability to consistently wean a live healthy calf, every 12 months, from around two years of age.

"So active decision making is needed: is the bull going to be used for breeding heifer replacements? Or will it be used as a terminal sire? Or is there a need for both, in which case, would selective use of AI be a good addition to the herd's breeding strategy?"

Bull selection factors

Ben explains: "When looking at a new bull, there are the visible features to consider such as conformation, general health, scrotal size, body condition, feet and legs. Then there are invisible features such as its health status, history, and fertility - multiple studies have consistently shown that around one in four bulls are infertile or sub-fertile.

"Another invisible feature is its genetics, half of which will be passed onto its offspring to affect their performance. EBVs act as a guide to how an animal's offspring will perform compared with similar animals in a similar environment, in effect displaying what traits an animal is genetically superior in.

"Yet EBVs are still very under-utilised in the beef industry, despite there being vast amounts of evidence supporting them. If farmers want to move their herds forward genetically, EBVs are an essential tool that needs to be incorporated into their decision-making.

Terminal vs maternal traits

"There are many specific traits which can be selected for using EBVs and these will vary between different breed societies. Some of these EBVs will be desirable to have in cattle which will be reared solely for meat, e.g. 200 and 400 day weights, and carcase traits. These are the terminal traits.

"Then there are the maternal traits to consider: traits that are important when breeding females to act as replacements within the herd. These focus on fertility and the ability to produce and

Good maternal traits in a bull are important when breeding heifer replacements

Bull selection should always include consideration of its Estimated Breeding Values

rear a calf. They include 200 day milk, calving interval, age at first calving, longevity and the ease with which they themselves will calve down.

"A 2015 EBLEX review showed that the beef industry had made significant financial gains with improvements in genetics over the years, but that these gains were mainly down to improvements in terminal traits. Unfortunately, selecting solely for these traits can have a negative knock-on effect for maternal traits.

"So the short term decision to select a bull which will produce a good carcase at the abattoir can mean that in the long term, maternal aspects of performance are getting left behind.

"Historically a similar process happened in the dairy industry with animals being heavily selected for production traits at the expense of health and fitness traits, such as fertility. Now though, all aspects are considered, creating dairy cows which are productive all-round and inevitably more profitable in our systems.

"So when looking for a bull to sire heifer replacements, some consideration of maternal traits is needed.

"There are reasons which may explain why maternal traits have been considered less in the past. One reason is that they tend to have lower reliabilities than those of terminal traits. This is because maternal traits are often poorly heritable, and consequently environmental factors have a larger impact on that traits variation. It can also take a lot longer to get the relevant data back for maternal traits, and also these will only come from the female proportion, limiting the data further. For instance, a bull is likely to be 6 years of age before there is feedback on the age at first calving of its daughters.

"So some people ignore maternal traits as they look unreliable, compared with the terminal traits. But a study done by the SAC in 2010 showed that even at 50% reliability, maternal trait EBVs were predictive of performance and good enough to aid decision making.

"The study went on to demonstrate that even bulls with maternal EBVs of less reliability than this, when followed through their lives, remained at a similar level of ranking among other bulls in later years. Young bulls considered to have comparatively good maternal traits were often still considered to be comparatively good later on when more reliable.

"Another reason for less consideration being given to maternal traits has been their lack of availability. Fortunately this has improved over time. More maternal traits are now being measured and available to commercial producers to aid decision-making. Some breed societies are further ahead with this than others.

AI-ing instead of buying?

"Choosing proven bulls with good maternal traits may require switching to purchasing semen straws and AI-ing some of the herd. (See pages 15-16 in this issue for information on the FarmSkills DIY AI courses).

"AI can give affordable access to bulls of higher genetic merit, and also without the risk of bringing in infectious or venereal diseases. Furthermore, AI provides the flexibility of choosing different straws for different desired outcomes, a cost-effective way to act on breeding decisions rather than invest in multiple bulls.

"AI, using a bull selected for its maternal traits, could just be used for heifer replacements and would extend the longevity of the terminal bull(s) in the herd.

"AI can also be used in conjunction with synchronisation. This not only gives greater control on the timing of inseminations enabling calving blocks to be tightened, but it also makes it easier to plan the visits by external AI services."

Future developments

More and more dairy farmers are utilising the breeding technology of genomics as a tool to increase their genetic progress. This has been through increased uptake in using genomic bulls for AI, as well as genomic-testing of heifers in the herd to help with breeding decisions early on in life.

Ben explains: "Genomics has been a massive breakthrough as it cuts out time - a hair or tissue sample from a new-born calf is enough to yield reliable information about the future performance of that animal.

"For the beef industry, genomics will mean traits that are difficult to measure can be made much more widely available at an improved reliability. This will include maternal traits along with other more recently discussed traits such as feed efficiency and information on primal cuts. While behind at the moment, the beef sector is developing in this area with genomic EBVs now commercially available for some bulls.

'Horses for courses'

"When selecting a bull to put to a group of cows or heifers, farmers need to consider whether the offspring will be finished for meat, or be staying in the herd as replacements. "Does the bull need to be an 'all-rounder' or does herd size and management allow the selection of some bulls just as terminal sires, and others for breeding the next generations? Does AI have a place in this breeding management?"

A bull that's an all-rounder? Or one selected for its good maternal traits? Or terminal traits?

Ben adds: "Either way, active decisions looking at your desired outcome should be guided by using EBVs as an additional tool, along with all the other information at your disposal."

Synergy Beef Discussion Group

'Making objective breeding decisions' was the subject of a recent meeting of Synergy Farm Health's Beef Discussion Group.

Meetings are held every six months and members are being invited to take part in a benchmarking project. This measures Key Performance Indicators and allows participants to see where and how to improve the performance and profitability of their suckler herds.

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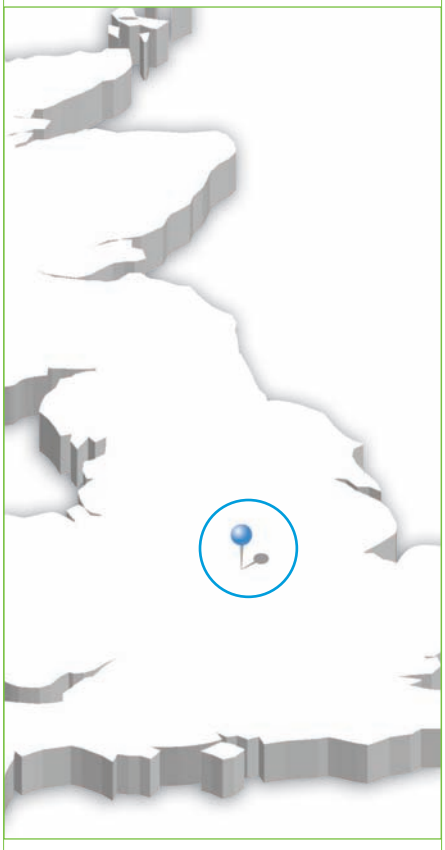
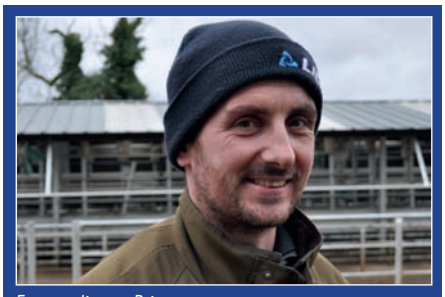


Veterinary surgeon	Mike Thorne
XLVets practice	Farm Vet Solutions

Mike Thorne, Farm Vet Solutions

Forward-thinking strategies have given flying herd a flying start!

In October 2014, Jimmy Pritt took on a contract-farming position at Whetstone Pastures Farm near Leicester, and set about creating a spring block-calving dairy herd, from scratch. To assure the health and performance of his herd, he enlisted the advice and veterinary support of vet Mike Thorne of Farm Vet Solutions.



Farmer Jimmy Pritt

Now, less than four years later, Jimmy successfully runs a healthy flying herd of 360 cows and heifers - mainly Irish Friesian with some Jersey crossbreds. The herd is grazed from February to December, and averages milk yields of 6,000 litres/cow, with 4,300 litres coming off forage. Production is an average of 492kg of milk solids per cow, and with liveweights around 550-575kg, Jimmy is not far from his target of a 1:1 ratio.

Cows calve down from March to the end of May - which suits the requirements of the milk buyer. For 2018, Jimmy had bought in 50 in-calf heifers which calved in February.

Jimmy explains: "All calves used to be sold at 3-4 weeks of age but now we are sending them off at 2-3 weeks - they don't make as much but it's a saving in labour. There's just me and the herdsman full-time, with part-time help at peak times and weekends."

All cows/heifers are served to beef. "By buying in all our replacements, we know the costs. Besides, we've no spare ground for youngstock."

Vaccination strategy

Mike explains: "When Jimmy arrived here, before any cows came, we discussed and agreed upon a robust vaccination and veterinary policy. Cows were being sourced from several farms in Ireland, and also Hampshire. While the herd was being formed, Jimmy would blanket-vaccinate all animals for BVD, IBR and lepto.

"There was also a high risk that the cows coming in from Ireland were infected with liver fluke and Salmonella. So additionally, these cows received a flukicide on arrival, and were also vaccinated against Salmonella. This vaccine is expensive compared with other cattle vaccines, but when buying in livestock from Ireland, then it is prudent to do."

He explains: "The commonest type of Salmonella on dairy farms is *Salmonella Dublin:* it causes abortions and retained cleansings in cows, and scours and pneumonia in calves. As with any Salmonella bacteria, there are zoonotic implications too.

"Now, the herd is up and running, Jimmy can afford to be more selective in his vaccination approach."

Calves are now sold a week earlier to save on labour

Jimmy adds: "I don't like to source from anywhere with a TB history, so I'm buying in from just a few farms in North Wales. I'm asking what their vaccination policies are, and then adapting mine. The 50 in-calf heifers I bought had already been vaccinated for lepto and BVD, so all we needed to do was give them IBR and Salmonella protection on arrival."

Venereal disease risks

With no need for home-bred replacements, all cows that come bulling in the first six weeks of the breeding season are AI-ed. After which, any still to conceive are run with sweeper bulls.

Mike warns: "Bulls can also be a source of Venereal Diseases (VD) such as Campylobacter and Trichomonas. This is especially a risk for farms which hire in bulls.

"Signs of VD in cows are irregular returns to heat because they hold and then lose a calf, followed by endometritis - characterised by vaginal discharge.

"Ideally, farms should only hire or buy-in virgin bulls. If this is not possible, then as well as the usual quarantine procedure, bulls should be thoroughly sheath-washed with antibiotic to clear up any VD infection. However, the Campylobacter bacterium can be difficult to remove completely, as it gets into the crypts in the prepuce."

"Jimmy is buying heifers which are in-calf. If they have been AI-ed then there is no risk of VD. But if they were inseminated by a bull and it had a VD infection, then they will have been infected too. If their next conception is achieved using a sweeper bull, then the infection will start to spread through the herd.

"So, Jimmy needs to always buy in virgin bulls, and heifers which are pregnant by AI."

Mike has recommended that Jimmy only buy virgin sweeper bulls to avoid risk of bringing in venereal diseases.

Investments in infrastructure

2017 was a busy year, with a number of major investments and conversions made. Cow tracks were laid across the whole farm, along with more water troughs and water pipe!

Jimmy invested in a water system which doses liquid minerals into the water, assuring cattle receive their needs of selenium, iodine and magnesium.

Jimmy explains: "I'll do a mineral 'budget' for the year, so that at critical periods - through calving and early in the season when they are being served - cows are receiving their requirement."

Mike adds: "Magnesium is added into the water in the spring when cows are prone to staggers, and also at calving to prevent milk fevers. And in summer when clover is plentiful, and cows are at risk of developing frothy bloat, a surfactant can be added which breaks down the gassy bubbles."

Jimmy adds: "Ultimately, I don't think this will save money, but it gives me peace of mind, and I can feed parlour cake with no minerals in it. It's less hassle than administering boluses, and if it's a wet day for instance, the system adds more minerals into the water."

In June last year, Jimmy installed a bigger parlour - a 24/48 with a circular backing gate, and a dirty water irrigation system. He reseeded 80 acres of grassland, added 300ft of extra feed space and converted a loose yard into a new cubicle shed.

"Originally the farm had 180 cubicles but we've now got 340. The latest lot, were bought second-hand and I've deliberately installed them upside down! Because the cows are small, this helps them lie straight in them. The kerb is also built higher to prevent the scraper washing slurry onto the beds at the end of its run."

Cubicles were installed upside-down - deliberately!

Next steps

At 360 milking cows, the herd is now a 'nice' number, according to Jimmy: "They all fit into the collecting yard, and it's a manageable number for two full-time people. The only reason I would expand is if more ground became available. But then if we went any bigger, the cow tracks wouldn't be wide enough."

So 2018 is going to be a year of consolidation for Jimmy: "Lameness - specifically white line disease - has been an issue and we are going to re-do some of the cow tracks. Limestone dust will be used now, as concrete sleepers have become too expensive."

"I was disappointed with the herd's fertility last year, although there were a number of reasons for that. But I want to improve it going forward.

"One of the factors was the old 24/24 parlour: it took four hours to milk the herd, so cows weren't eating for eight hours each day.

"Although the new parlour has halved the milking time, we moved the cows over to it in the fourth week of the breeding period when we were extra busy. Also, that June the weather was very dry and not enough water was getting to the troughs, milk yields also went down. With all that going on, my herdsman and I missed seeing some heats.

"This year, we will be feeding a set amount of cake in the parlour - I'm allocating 800kg per cow, plus we buffer feed with maize and grass silages on the shoulders of the season.

"We are going to use tail paint, and then outsource AI for the first six weeks of the breeding season. This will allow us to focus more on heat detection.

"After calving, we always test every cow to check there is no endometritis. Mike, or one of his FVS colleagues then makes a pre-mating visit to treat any non-cycling or dirty cows.

"Last year, these routine fertility visits were made every three weeks during the breeding season," says Jimmy. "But this year we'll have them every two weeks. Plus I am asking Mike to get some tests done on the quality of the semen in the straws, and also carry out bull breeding evaluations on my six Hereford sweeper bulls."

Mike explains: "In a block-calving herd, conception rates are absolutely critical so that cows get back in-calf to fit the block. Good health is essential. Jimmy is covering all bases with his forward-thinking on vaccination, nutrition, and his new focus on the many factors which affect breeding success."

Jimmy adds: "I want to keep everything simple, but also keep everything covered."

Sam Potter, Hook Norton Veterinary Group

Investigation into poor fertility prompts two new vaccination programmes

After vet Sam Potter of Hook Norton Veterinary Group found almost half the cows 'empty' on a routine PD visit to Richard Spencer's suckler herd, investigations led to the adoption of vaccination programmes for leptospirosis and BVD.

Richard Spencer's Mansell Farm near Stratford upon Avon in Warwickshire is a mixed farm. Half the ground is down to arable crops, and the rest, grassland. Here he runs a 75-cow suckler herd made up of Beef Shorthorn cross Belgian Blue cows and around 20 pedigree Beef Shorthorns.

Bulls are run with the cows for only nine weeks, and the herd calves down in two short blocks, in spring and autumn.

Richard explains: "Having two calving blocks helps spread the workload and helps ensure a year round supply of finished cattle to meet my supermarket contract. It does also mean there's some scope for cows to slip six months into the other block if needed."

Richard had a herd health plan that was reviewed annually with his vet Sam. But with the farm bounded by other arable farms, and a closed herd which was in good health, Richard did not see the need for any vaccination programmes.

Empty cows

"Richard is building his herd and increasing numbers, so fertility is extremely important and is closely monitored," says Sam.

In the October of 2016, Sam made one of his routine fertility visits in advance of the March calving block. But out of 34 cows, he found 15 of them were 'empty'. This wasn't the only issue: two cows which had scanned as PD-positive three months earlier, had since aborted.

Richard Spencer's herd calves down in two short blocks

Veterinary surgeon	Sam Potter
XLVets practice	Hook Norton Veterinary Group

Richard had never had any problems getting cows into calf prior to this. Poor bull fertility can sometimes be the reason for PD-negative cows. But this particular group of cows had all been artificially inseminated by Richard, who was very experienced in the technique.

Sam's immediate plan of action was to check for the presence of infectious diseases and any mineral deficiencies. He took blood samples from a representative group - and also included samples from the two cows which had aborted.

The herd tested naïve to BVD

Richard always put out general purpose mineral buckets for the herd, and a specific formulation for the dry cows. Reassuringly, test results for copper, selenium and cobalt confirmed levels were normal.

Blood was screened for the presence of BVD, IBR and leptospirosis. The results showed the herd was naïve to IBR and BVD. However, there were two positive samples for leptospirosis, which came from the cows which had aborted.

Sam explains: "This was evidence that the herd had at some point been exposed to leptospirosis. But it didn't tell us whether or not the disease was still present in the herd, nor if it was the primary cause of the abortions - because we didn't have the aborted foetuses to test.

"Leptospirosis not only has costly implications for the herd due to abortions and production losses, but it is also a zoonotic disease. So it's paramount we vets work with farmers to protect their staff if there is a risk of infection."

"So that autumn we placed all the cows and heifers on a vaccination programme to control the disease. They would then need annual boosters. These are given in the spring at the same time as TB testing."

BVD control

Due to the naivety of the herd to BVD, and the risk the disease poses to animal health and productivity, Sam also recommended that a BVD vaccination programme be adopted.

Sam explains: "The test results indicated, with a fair level of confidence, that there were no PI animals in the herd, and hence there was no active virus.

"However there is always a risk that the BVD virus can enter a farm. If cattle are not protected, it can circulate through the herd with significant negative consequences.

"In fact, I've had clients in the past with herds which were naïve to BVD who decided not to vaccinate. But then the virus did enter the herd, for example, through bought-in animals, and consequently caused devastating results.

"So I suggested that Richard introduce BVD vaccination into his herd health plan. After all, prevention is better than looking for a cure."

Accredited health status

Richard now vaccinates all breeding stock for both BVD and leptospirosis, and has since joined a herd health scheme.

Sam explains: "Because Richard and his team had put a lot of time and money into getting the herd onto a robust vaccination programme, I suggested he look into getting accredited for this work.

"More and more buyers are looking at health status and it is something to be proud of. Being a member of a health scheme helps farmers to get a premium price for their cattle, especially for pedigree animals.

"The requirements of Richard's scheme are that a representative group of animals in the herd are screened annually for BVD, IBR, leptospirosis and Johne's disease. Once three consecutive annual tests come back negative for a particular disease, the herd is given an accredited 'low-level' disease status," explains Sam.

"However, if test results come back positive, then we need to work together to determine the root cause of infection, and what action needs to be taken to prevent further animals becoming infected."

Sam adds: "Last year we screened Richard's herd for IBR and found that 8 out of 127 cattle tested positive. As some had been bought-in, the decision was made to cull those eight that were positive, and then test the herd again at the same time as its annual TB test. If IBR is still present, then we may need vaccination in the future."

Disease control on-farm

Richard explains. "I'm using vaccination as a preventative measure to mitigate the risk of BVD and leptospirosis infecting my cattle. It's been easily incorporated into the herd health plan.

"If we hadn't PD-tested and looked into why those cows weren't in calf, then who knows how many cattle may have become infected with leptospirosis, and the cost implications that could have entailed.

"Although it was an initial cost to the business to put all the breeding cattle onto vaccination programmes, in the long-term, financial benefits will be seen through reduced incidence of abortion and limited production losses."

Sam adds: "The vaccination programmes are one part of maintaining a disease-free status, along with striving for a closed herd and implementing robust biosecurity protocols across the farm."

Richard Spencer is now vaccinating for leptospirosis and BVD

Natalie Parker and Dan Stevenson
Lambert, Leonard and May

Teamwork and a clear focus ensure excellent herd mobility

A focus on identifying and promptly treating (even slightly) lame cows is ensuring one Staffordshire farming family maintain an excellent track record for good mobility in their high yielding herd.

Factors for their success are regular foot-trimming, diligent foot-bathing and a six-weekly mobility scoring service from their veterinary practice. But fundamental to their success is a team approach.

Working together at Manor Farm, near Whitchurch, are farmers Steve Cox and son Tom, their farm staff, and from the Lambert Leonard and May (LLM) vet practice: vets Dan Stevenson, Bill May and Vet Tech Natalie Parker.

Focus on lameness

The herd at Manor Farm consists of 530 cows, giving 11,300 litres/cow on three times a day milking, with low yielders grazed in the summer months. The herd calves all year round, and either Dan or Bill visit fortnightly to carry out fertility checks.

The Cox family also take advantage of LLM's Vet Tech services. In the calf shed, weights are measured and monitored to ensure calf growth rates are on track, and assistance is given in implementing vaccination protocols and with record keeping. Mobility scoring of the milking cows, dry cows and in-calf heifers is carried out every six weeks by Natalie, so lameness cases can be identified and treated.

Dan explains: "There has never been a massive lameness problem at this farm. Nevertheless, the Cox family have the mindset that they want to have no lame cows. The desire to change anything like this has to come from the farm team if it's going to be successful. We vets just fill in the gaps by providing education and support.

"The focus on feet began In February of 2014, when we audited the farm using what was then the Dairyco Healthy Feet programme; this involved assessing the types of lameness in the herd, identifying the risk factors, and also checks on people's foot-trimming skills.

"The main cause of lameness in the herd was sole ulcers. Improving cow comfort is key to reducing its incidence."

Tom explains: "We had tried a variety of bedding materials on top of the cubicle mattresses. Then two years ago we tried using sand - we converted a loose yard to cubicles with sand to see if there was any difference. There was. In fact, there's nothing in the same league as it. Now, the new sheds have sand, and we converted the old cubicles to accommodate it too. The youngstock are also in cubicles and on sand."

Foot trimming policy

Tom Cox was taught to trim hooves by his father and has also been on a couple of hoof trimming courses organised by LLM.

Tom explains: "Cows are all trimmed at drying off, and receive further attention ad hoc when we see it's needed. Almost every day

Tom (left) and Steve Cox

Lambert Leonard & May LLP
First in the field

Vet Tech	Natalie Parker
XLVets practice	Lambert, Leonard and May

Veterinary surgeon	Dan Stevenson
XLVets practice	Lambert, Leonard and May

someone is 'doing feet'. It's not nice to see a lame cow."

The rollover crush has proved an important piece of kit. Tom adds: "We've had it several years now, and it helps a lot. With the old crush, we'd tend to just pick up and treat the problem foot, but with the rollover crush, whoever is trimming will look at all the feet. I can work through 15 cows in a morning."

The rollover crush makes foot-trimming easier - all feet get attention

Natalie adds: "If farmers can keep on top of foot trimming, and have good equipment, it's easier, quicker, and also more pleasant to do."

Mobility scoring

Natalie visits every six weeks and scores the cows for mobility as they exit the parlour after the midday milking, she adds: "They have to walk a certain distance back to the sheds, and as they are more relaxed too, it is easier to evaluate them correctly."

The AHDB Dairy Mobility Score system is used: 0 - for good mobility, 1 - when cows are walking slightly unevenly, 2 - when showing lameness in one foot, and 3 - when lameness is preventing them from keeping pace with other cows.

Scores are recorded directly onto a tablet and before Natalie leaves the farm she emails a list of cows that score 1, 2 or 3, and need to be checked. Back at the practice, a report is generated and then reviewed by Dan who adds comments before it is sent over to the farm.

Tom comments: "Natalie is brilliant at spotting exactly which foot needs treatment. We'll get the list and start working our way through it. It's still very rare to have no cows needing to be trimmed."

Foot-bathing

There is very little digital dermatitis on the farm. The milking cows are foot-bathed as they exit the parlour each morning. Formalin is used, and is changed three times during the morning milking - every 160 cows. The dry cows and heifers go through it twice a week.

Natalie adds: "The dry cows can sometimes get forgotten on a farm. But it's important to ensure their feet are also free of digital dermatitis, otherwise when they come into the herd they will spread the infection."

Originally, when the new rotary parlour was installed nine years ago, a purpose-built footbath, sunk into the concrete, was integrated into the race for cows to go through after being milked.

Dan comments: "Cows don't like stepping down into water when they can't see the bottom. Recognising the cows' reluctance, Steve and Tom had the trench filled in and now use a more cow-friendly tray - which is also long enough to ensure that all hooves get dunked several times in the solution."

Quarterly reviews

Team meetings are held (approximately) quarterly to review aspects of herd health and performance, specifically: disease incidence, mobility, mastitis, fertility, calf growth rates and medicines usage.

Attending these meetings are vets, Dan and Bill, and Natalie representing the Vet Techs, plus the Cox family, key farm staff, and the farm's nutritionist. plus the Cox family, key farm staff, and the farm's nutritionist.

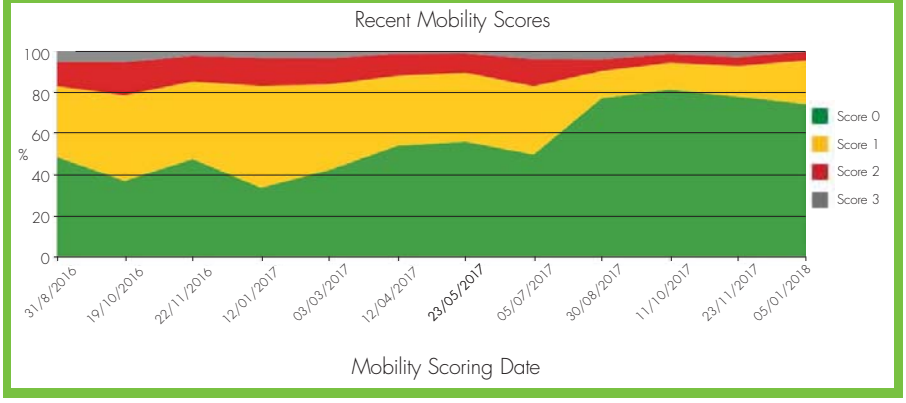
Dan says: "Taking control of herd mobility is a lot about having the right mindset and the desire to rid a farm of lameness. At Manor Farm, everyone does their bit. We can provide loads of evidence about the benefits of healthy feet in a herd. But everyone on the farm has got to want it. It's all about picking feet up as soon as any problem starts.

"We first began mobility scoring at the farm in December 2013. At this point 78% of the herd was sound and 8.6% of the herd had a score of 3. Mobility has continued to improve and now 95% of the herd is sound, and only 0.7% of the herd (just three cows) has a score of 3."

Natalie adds: "The farm team at Manor Farm not only listen to our advice, they do something about it! Having a herd in good health including good mobility, all helps promote their herd, and has helped enable them to change their milk contract to sell their milk at a better price."

Steve Cox admits that despite employing the extra services of LLM's Vet Tech team, his vet and medicines bill is… 'not going up'!

95% of the herd are sound (scored 0 or 1)



Natalie records mobility scores directly onto a tablet

Matthew Pugh, Belmont Farm & Equine Vets

Greater flexibility, lower costs and better control through DIY AI

Greater flexibility in sire choices and improved herd fertility are just two of the benefits that can be achieved when farms have a trained inseminator(s) amongst their staff.

Here, vet Matthew Pugh of Belmont Farm & Equine Vets outlines the benefits of taking AI in-house, and how delegates who attend a FarmSkills DIY AI course will learn not just how to inseminate, but also how to ensure good herd fertility.

Why DIY?

Matt explains: "By having someone, or several people, on-farm who are trained in AI means that once a cow is seen on heat, there's no waiting for the AI technician to arrive. So the timing of insemination can be more precise and cows won't need to spend so long waiting in the race, away from their feed and their herd mates.

"Also, cows recognise the individuals who look after them, and similarly farm staff will be familiar with the nature of individual cows. So it's less stressful for the cow, which is a positive factor for conception.

"There are benefits in biosecurity too - not just in using frozen semen rather than buying in bulls, but also because it means fewer visitors coming onto the farm who have been on other farms. So it reduces the risk of disease being carried onto the farm.

"When adopting a DIY AI policy however, it's important to ensure that there will always be a qualified inseminator on-farm when needed! More than one person needs to be trained, or alternative cover needs to be provided if the farm's inseminator is away."

Anyone wanting to do AI on a farm will need to complete a DEFRA-approved course as they need to not only understand and be competent at inseminating a cow, but also to understand the legislative and welfare requirements that come with being a qualified inseminator. Such DIY AI courses are available through FarmSkills, and are run by vets at a number of XLVets practices.

Veterinary surgeon	Matthew Pugh
XLVets practice	Belmont Farm and Equine Vets Ltd

Delegates perfecting their AI technique on a FarmSkills DIY AI course

AI in Suckler herds

In suckler herds, AI can be a very cost-effective way of improving genetic gains. It also enables tighter control on when cows are served, and hence conceive, compared to a bull plus gives more flexibility in sire choices.

Matt explains: "Instead of needing multiple bulls for a herd, using commercial frozen semen enables a wider variety of bulls to be used strategically. For example, farmers can choose straws of an easy-calving bull with good maternal traits for use in heifers, with their female calves then retained as future replacements. Cows can then be put to a terminal sire which has EBVs that allow the farmer to select for excellent growth rates and 400-day weights.

"There are cost benefits too - it will be cheaper to AI with a high EBV bull than buy in a bull of the same genetic value which always brings a risk of disease, and will then need managing and feeding.

"A good inseminator should be able to achieve the same conception rate as a bull," adds Matt.

Fertility factors

DIY AI courses cover the handling and thawing of frozen semen, loading guns, and the insemination technique itself.

Matt explains: "But correct semen delivery is only part of conception success. There are cow factors to consider too.

"Delegates attending a FarmSkills course won't just learn how to inseminate a cow. What's also important is that course trainers ensure they leave the courses with an understanding of the factors that can influence fertility itself.

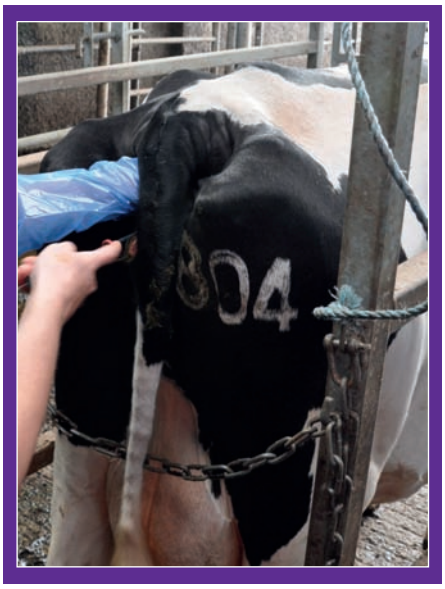
"There are many factors that drive individual cow fertility and herd fertility: infectious diseases, nutrition and its influence on body condition score, minerals etc. These can individually or in unison act as potential bottlenecks to fertility. These will be discussed and assessed in a practical manner while time is spent on farm during the course.

"The golden rule is to inseminate the cow 12 hours from first sign of standing heat. So heat detection is also crucial for success. We'll go through the signs of heat, and discuss the challenges - the silent heats, and the technologies available to overcome them.

Hands-on practice

"The practical sessions start with some abattoir specimens of cow uteri. This really helps people to engage and understand the anatomy of a cow's reproductive tract. Delegates will see the uterine horns, and appreciate the delicate nature of the fallopian tubes and ovaries. It also provides a good insight into the variability in size and shape of cervixes, and uteri. We look at the pathology, signs of uterine infections and adhesions.

"Delegates then practise their insemination technique on a uterus - first with their eyes open, and then with them shut! Once they leave the course, they will need to ensure they can make an insemination in less than 15 minutes after thawing the straw.



"The course includes plenty of time to practise inseminating live cows. But gone are the days when we went to an abattoir and used straws of coloured dye on cull cows in the lairage.

"Nowadays, thanks to ultrasonic technology, we load blank straws with a gel that shows up on the scanner. This means practicals can be done on a farm - a much calmer setting for both cows and delegates. We tend to use a couple of local farms who are Belmont clients, who loan their cull cows.

"While we are on these farms, we'll have a look at their semen storage facilities. The temperature at the bottom of the liquid nitrogen tank will be -196°C, while at the top of the neck it will be closer to ambient temperatures. So how do we ensure we minimise damage to the rest of the semen in the tank when bringing up straws for selection - how clear is the layout and labelling?

"We'll do an audit of how the semen is thawed - the water temperature, its cleanliness and that of the guns.

Advice and tips on semen storage is also given

"In fact, all through the course delegates are taught to pay attention to good hygiene practice, and of course, be respectful of cow welfare."

FarmSkills
GROWING FARM BUSINESS SUCCESS

Typically, FarmSkills DIY AI courses run over 3-4 days to ensure delegates have plenty of hands-on opportunity to practise and perfect their AI technique.

Matt explains: "One of the features of a FarmSkills course is the small number of delegates: we limit the number to six on the DIY AI courses run at Belmont Farm & Equine Vets. It helps encourage friendly and open discussions - people learn from each other, as well as me!

"All the vets running FarmSkills programmes have been on a Train the Trainer course, which ensures that we have both the knowledge to lead the course, and also the teaching format and communication skills to ensure that every delegate comes away competent."

To find dates and locations of DIY AI courses, visit **www.farmskills.co.uk**

Funding for suckler herds

AHDB has awarded 50% funding for beef suckler farmers in the north-east of England, West Midlands and South West England, who have at least 30 breeding females, to attend FarmSkills DIY AI workshops.

Similarly, final year agricultural students who will be going to work full-time on 30-cow plus suckler farms can also benefit from the funding. Visit **www.farmskills.co.uk** for more information.

WILLOWS FARM ANIMAL VETERINARY PRACTICE

SQP	Mark Pass
XLVets practice	Willows Veterinary Group

Mark Pass, Willows Veterinary Group

Faecal egg counts fundamental to successful worm control in sheep

Here, Mark Pass, one of the SQPs (Suitably Qualified Persons) at Beeston Animal Health, part of the Willows Veterinary Group, explains why monitoring faecal worm egg counts is so crucial for successful cost-effective worm control.

Mark works closely with vets at the Willows practice, giving farmers advice on strategic worming programmes.

Mark explains: "Sheep farmers who don't measure worm burdens on their farms, or check the efficacy of their drenches, could not only be wasting time and money, but also compromising animal health and performance, and allowing populations of anthelmintic-resistant worms to increase.

"Drenching sheep needs to be based on science, not old habits. Carrying out faecal worm egg counts to monitor worms through the year is fundamental for success. As is, working with the farm vet and/or SQP to formulate a worming programme each year, tailored to the specific farm situation."

The facts on wormers

There are four main types of pathogenic worms in sheep: Nematodirus, Tele-ostertagia, Trichostrongyles and Haemonchus (Barber's Pole worm).

To control these worm infestations, there is a wide range of anthelmintics which have different efficacies in killing different worm species, and vary in their length of action. But broadly, they are classified into five different chemical groups, and the colour of a drench will indicate which group they belong to (See Table 1).

SQP Mark Pass adds: "If a drench has less than 95% efficacy, it's a sign that resistance is starting to develop. This won't be obvious clinically, until efficacy has fallen to low levels."

There have been various surveys over the years on the incidence of resistance to different categories of wormer.

Groups 1, 2 and 3 are older chemistry. One study across England and Wales in 2013, as part of a SCOPS initiative, indicated that resistance to white drenches could be detected on nearly 100% of lowland farms and 83% of upland/hill farms. Resistance to yellow drenches was detected on 47% of lowland farms and 17% of hill/upland farms, all of which also had resistance to white drench. Resistance to clear drenches was 63%.

Another study in 2015, across 47 Welsh farms, found resistance to white drenches on 94% of them, yellow drenches on 68%. For the clear drenches in Group 3, there was resistance to Ivermectin on 51% of farms, and to Moxidectin (relatively newer chemistry), 19%.

"However, the main point for sheep farmers, is whether there is resistance to any of the drenches on their own farm. The only way to assess the situation is by using faecal worm egg counts - FWEC - and faecal egg count reduction tests - FECRT."

Table 1: Classifications of anthelmintic – by chemistry and colour

	Chemistry	Drench Colour
Group 1	Benzimidazoles (BZ)	White
Group 2	Levamisoles (LV)	Yellow
Group 3	Macrocyclic-lactones (ML)	Clear
Group 4	Amino Aceto-nitrile Derivatives (AD)	Orange
Group 5	Multi-actives (SI)	Purple

How well is a wormer working?

The efficacy of a drench on a farm's worm population can be evaluated with a simple drench test.

At the time of drenching, take fresh dung samples from a sheep group, pool them, and submit promptly to the vet practice for Faecal Worm Egg Counts. Then, either 7 or 14 days later, as advised by the vet/SQP, submit another pooled sample for another FWEC. Compare the results to assess the levels of worm resistance, ie drench efficacy.

To more accurately evaluate efficacy of a specific wormer, then carry out a Faecal Egg Count Reduction Test (FECRT): this time, when drenching, collect single dung samples from 15-20 sheep (chosen randomly in the group) and label each pot with each sheep's ID. Depending on the drench used, take dung samples 7 or 14 days later, from the same 15-20 sheep and label the collection pots accordingly. This takes more time to do, but gives a more accurate indication of efficacy/resistance.

Mark says: "Fortunately, there is little evidence of resistance to the new chemistry - products in Group 4 and 5 - the orange and purple drenches. So these are very effective as 'knockout-drenches' - as all worms will be susceptible.

"However some farmers are reluctant to use them, thinking that they are only a last resort when the yellow/clear/white drenches have failed.

"That's not the case. They do need to be used. But they need to be used strategically, and farmers should first consult with their SQP and/or farm vet. There are only three specific occasions when it is appropriate to use them."

These are:

1) For sheep in quarantine: drenching all new arrivals will stop them bringing resistant worms onto the farm.
2) A mid-late season dose in lambs (typically around September): this kills any resistant worms not killed by the drenches used during the year. It also stops worms over-wintering on the farm.
3) Where resistance to the white/clear/yellow drenches has been identified, then these knockout drenches need to be used in conjunction with appropriate pasture management.

Is it worms? Get a FWEC!

Willows vet Sam Bowker explains: "Some sheep innately have more immunity to worms than others. So signs of wormer resistance on a farm will include: increased numbers of smaller lambs; falling growth rates year on year; increased variability in the lamb crop; and lack of response to worming, e.g. scours continuing post-drenching.

Sam Bowker

"However, a heavy worm burden is not the only cause of poor performance and/or scours in sheep and lambs. Coccidiosis also causes scouring, as does Johne's disease in adult sheep. Poor growth rates could be due to mineral deficiencies, while ectoparasites such as scab will also reduce daily liveweight gains.

"Faecal egg counts are a cheap tool to find out if worms are the cause, and the same test will identify coccidia. Fresh samples of pooled faeces should be taken to the vet practice, labelled with the date, field name and sheep group, e.g. ewe lambs."


Willows vet Gethin Edwards carries out an egg count

Two farmers who are working more closely with their vet and SQP, and taking a more informed approach to worming their flocks by using FWECs, are Alan Jackson and Elaine James.

CASE STUDY 1:

FWECs reveal wormer resistance to be reason for poor performance

When it came to worming his flock, Cheshire farmer Alan Jackson thought he was doing it right. One year he would use a white drench, and then the next, a clear drench. Then back to the white in the third year. And so on.

In 2016, Alan started working more closely with Willows Farm Vets, and taking advice from Mark Pass and Sam Bowker. He also signed up to the Willows' Sheep Club for some proactive health planning for his flock.

One of his motivations to do this was a problem with a group of lambs which were scouring badly. Alan explains: "I had some lambs on a field called The Mount, and they were scouring in July, despite having been drenched five times, and also receiving a mineral-bolus.

"Mark and Sam visited and took faeces and blood samples, plus forage samples."

Sam explains: "Most of the blood results came back normal - just slightly low in copper - but there was a very high worm burden. This was despite lambs having been drenched with a white drench two weeks prior to our visit.

"So we advised Alan to use a clear drench and to then collect a faecal sample two weeks later for a drench test. The egg counts came back high in both the groups tested, suggesting resistance also to clear drenches, the ivermectins. Meantime lambs continued to be in poor condition. Alan had been relying heavily on just the white and clear drenches for the past ten years, and was also on ground that was in constant use for sheep.

"So Mark and I discussed the results, and we advised the strategic use of a knockout drench. We continued to monitor the situation with FWECs. Two weeks after using the purple drench, the lambs had stopped scouring, egg counts were below the 500epg threshold, and remained so for the rest of the year." (See Figure 1).

At Old Parks Farm near Macclesfield, Alan runs 1,500 ewes in total, mainly Suffolk crosses with some Texel crosses. These are split into different groups through the year, similarly, their lambs.

Mark adds: "Different groups of sheep will have different exposures to worm burdens. Some groups may need worming more often than others. Alan is really good at labelling the faecal samples he sends us with the field names and sheep. He keeps a diary of worm egg count results and treatments so that the situation can be more easily monitored."

Alan Jackson with Mark Pass and Sam Bowker

Sam: "We knew the farm had worms which were resistant to clear and white drenches. However, Alan hadn't used a yellow drench for eight years so we decided the following year to trial a yellow drench. We did a drench test to check resistance levels and there weren't any."

"Guessing is all right, if you are right!" says Alan. "Else it's an expensive mistake! Last autumn, I sent off some 'poo samples' from some store lambs. The results showed they didn't need worming, so I saved time and money there.

"And in another lamb group, which looked fine, the poo-samples we took for egg counts also showed they'd got sub-clinical coccidiosis. So I was able to get them treated before they started scouring."

Sam adds: "Having the data from the egg counts allows us to make informed decisions. Alan is now targeting his wormers better, saving money and getting more lambs to market, faster."

Some groups of sheep may need worming more often than others, or not at all

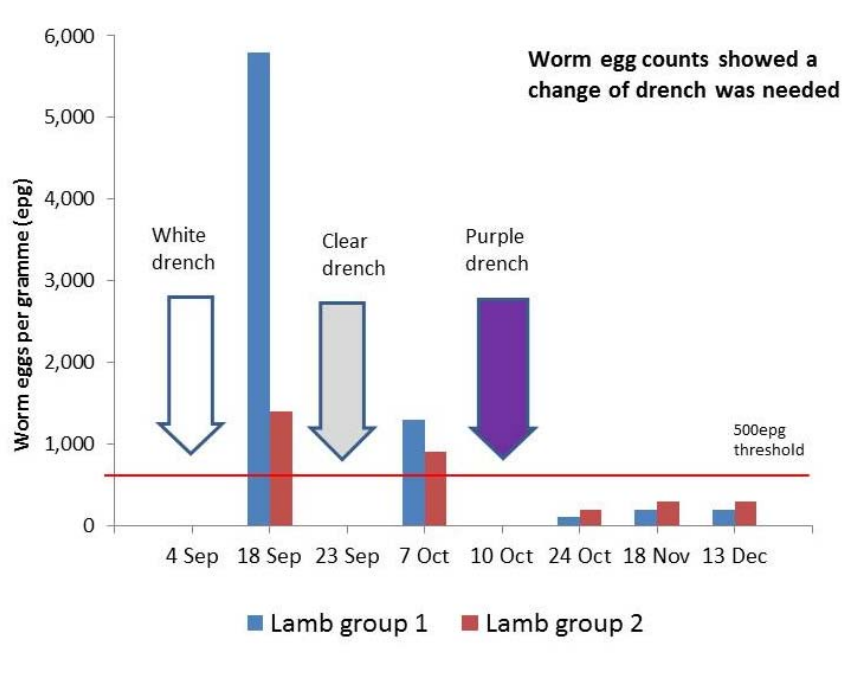


Figure 1

Refugia – a strategy to prolong drench efficacy

Mark explains: "It's important to avoid resistant worms breeding with each other, as they will pass on their resistance to the next generation. Refugia is a strategy which can be used to prolong the efficacy of a drench by reducing the resistance pressure.

"For example, take 100 lambs which are all drenched: some worms with resistance may survive. When lambs are moved onto clean grazing, then this pasture would become infected with worms which were all resistant.

"So to dilute this resistance pressure, use a 'refugia' strategy: only drench about 90% of the lambs, and leave the larger healthiest-looking ones untreated. These will contain susceptible worms which may then mate with some of the resistant ones so that the pasture contains a mix of susceptible and resistant worms. Ultimately, this reduces resistance pressure.

"Another refugia strategy is to worm all the lambs and put them back onto 'dirty' pasture for a while. The susceptible worms they pick up there will then mate with the resistant worms, diluting the resistance pressure.

"A refugia approach is not suitable in all situations, so farmers should first seek advice from their SQP or vet."

CASE STUDY 2:

Worming programme incorporates all five drench types

Over the past 12 months, sheep farmer Elaine James has purposefully and strategically used drenches from all five chemical groups - clear, white, orange, purple and yellow - for her 300-ewe flock. Her worming strategy includes regular worm egg counts, results from which have reduced drenching frequency. Recently, a new resistance issue has been identified.

At Deemster House, near Whitchurch in Shropshire, Elaine manages a 300-ewe flock made up of bought-in Welsh mules and homebred Texel x Mules.

Prior to lambing, ewes receive a trace element bolus, and will then have access to a molasses-based liquid feed with minerals. Lambing starts at the end of March, outdoors. Ewes with twin lambs get penned together in the paddocks, singles stay out in the field.

Elaine explains: "I rent much of my ground on short term leases, and also tend to use the same ground all the time. Some sheep and lambs do go away for winter keep on dairy farms."

Elaine James with SQP Mark Pass who annually draws up a strategic worming programme

"In the past, my drenching programme had been done more by eye, than science. If lambs weren't doing very well, they'd get drenched." admits Elaine. "I usually used a white drench, and had done some drench rotation. But none of this was based on any tests."

Elaine moved over to working with the Willows Vet Practice six years ago and soon joined up to the Willows Sheep Club, set up by vet Gethin Edwards. She now benefits from a flock health plan which includes a strategic programme of worming. SQP Mark Pass gives advice but also talks to Gethin for a joined-up approach.

Elaine's drenching calendar

Elaine's drenching calendar has been put together by Mark and Gethin. It specifies when to drench different sheep, based on results from faecal worm egg counts, and what to drench them with.

Mark explains: "Ewes are wormed when they get turned out of their pens with their 1-2 day old lambs. This reduces egg output onto the pasture, so there are fewer eggs for the lambs to pick up. Rams are also wormed at this time.

"Last year we used a long-acting clear drench, but this year we will be trialling a shorter acting wormer.

"In the past, farmers used to be advised to drench ewes pre-tupping. But nowadays this is not considered necessary as ewes should have the immunity to fight off worms without drenching."

In September, FWECs are carried out to assess whether the ewes and rams need to be wormed again that year, or not.

Mark adds: "Worm burdens will vary year by year, even with the same ground and the same sheep. So getting faecal samples tested will identify whether worming a specific batch of sheep is needed, and when tests are done on a routine ongoing basis, it builds up an overall picture on the farm.

"The threshold for the need to worm is 500 epg. Last year, the ewe results came back with a low count of 200epg, so no drenching was needed.

The FWEC also showed there were no adult fluke eggs present.

"Elaine uses separate drenches for liver fluke and worms. Although it's not as convenient as a combination product, this is 'best practice' because sheep are only getting dosed for what they need.

"Lambs will receive a flukicide in October, and again in December to wipe all stages out. All sheep on the farm then receive a flukicide in March/April." He warns: "People used to think fluke was an autumn problem. But we can start seeing problems as early as July."

Lambs receive their first drench - a white one - for nematodirus, when they are around six weeks old and have started eating grass. A FWEC is done at the same time to measure coccidial oocyst levels.

Mark explains: "Nematodirosis can strike very quickly. Farmers can't afford to have a 'wait and see' policy because the damage is done by large numbers of immature larvae that are not producing eggs. So a FWEC is not a reliable indicator of the risk. Rapid action is often required and this has to be based on a risk assessment and forecast for the area.

Six weeks later, another FWEC is carried out, and if egg numbers warrant it, then the white drench is used again.

Mark explains: "There is a lot of worm resistance to white drench on sheep farms, but very little for nematodirus. So it is the perfect time to use this type of drench."

Elaine starts sending lambs away in June and continues through to the next April, selling most at 36 - 46kg to an abattoir, with some going to a local butcher.

Lambs still on the farm in mid-summer will get a third drench - this time, a clear drench. Then in August, a fourth drench - a yellow one. And the fifth drench used in October will be a knock-out drench - either an orange or purple one.

Nowadays Elaine weighs the lambs before drenching them instead of estimating weights, so as not to under-dose them. She also calibrates the drench gun - at the start and again halfway through.

Mark says: "Last year we carried out some drench tests as lambs had mucky back ends despite being wormed two weeks previously. For the first time on Elaine's farm, some drench resistance was seen: FWECs revealed high levels of Trichostrongyles - 1,800 epg in the fat lambs which had received white drench, and in a batch of seven month old ewe lambs that had received clear drench - 2,200 epg. So I prescribed an orange drench to use on them all next."

A knock-out drench is also used on all bought-in lambs, shearlings and tups, as part of the quarantine protocol.

"Previously I would drench lambs 5-7 times. So I'm using less drench now than I used to," says Elaine. "And if I'm concerned that a group of lambs aren't finishing fast enough, I take faecal samples and get worm and fluke counts. I don't just reach for the drench gun."

When submitting a pooled faecal sample, Elaine labels the pot with the date, field name, and specific group of sheep. She takes samples collected freshly in the morning to the Willows practice where they are analysed that day or early the next. Results come back within 24 hrs.

Mark adds: "Worms aren't the only cause of poor performance. Depending on the situation, and recent events, we may decide to blood-test for mineral deficiency."

Successful worm control

Mark explains: "Flock health plans are reviewed annually, and so prove invaluable in ensuring that worming programmes are updated to a particular farm's situation each year, based on its recent history of drench efficacy, and worm resistance challenges.

"Ewe/lamb nutrition and pasture management are also factors affecting sheep's ability to withstand worm burdens, and form part of flock health plans."

But with or without flock plans, every sheep farmer should be carrying out a series of FWECs through the year to evaluate the levels of worm burden in different groups of sheep, and drench efficacies. Only then can informed decisions be made on which wormers to use, dosing frequency and timings.

"FWEC tests are very cheap, and the results are likely to save costs in drench and time. And having a science-based strategic worming programme also ensures the responsible use of the limited chemistry we have available to protect animal health and performance."

Grazing sheep on cattle ground

Sam explains: "Alan and Elaine both send their ewes and lambs out to keep on dairy farms over the winter.

"There is no evidence of transfer of resistance to wormers between sheep and cattle.

"Besides, they are each affected by different species of worms, so there is no cross-over of infection. The only exception is Nematodirus, but this is only a threat in May/June.

"Grazing sheep on cattle ground actually reduces the population of cattle worms because sheep eat them, and they then die in the sheep. As a result, there will be a lower worm burden for cattle when they come out to graze in the spring - which is beneficial for both parties!"

"Every sheep farmer should be doing worm egg counts."

"Every sheep farmer should be doing worm egg counts."

'Best practice' worm control advice

- Drench strategically not tactically - ask your vet or SQP to draw up a programme for the year, tailored to your farm, that year. Don't just drench out of habit!
- Monitor worm burdens using FWECs through the year - It's a really cheap test!
- Ask for worm species to be identified to help guide choice of wormer.
- Don't drench if FWEC results are less than 500epg! (And save money and time).
- Ensure the drench gun is in good working order (is it time for a new one?).
- Calibrate the drench gun at the start, and re-calibrate at least every 50 sheep.
- Weigh animals to avoid under-estimating liveweights and under-dosing.
- Use a knock-out drench as part of quarantine protocols.
- Drench tests (and faecal egg reduction tests) should be performed regularly to determine resistance levels to anthelmintics on the farm.
- Leftover drench? Don't just put it in sheep! Store for next year: out of sunlight, in a cool (not freezing) place.

The Willows Sheep Club

Farmers who join the Willows Sheep Club pay a monthly fee and receive three vet visits during the year: pre-lambing, post-lambing and pre-tupping. An SQP will accompany the vet to provide input on parasite control strategies.

A flock health plan specific to the farm is drawn up. Members then benefit from vet support with e.g. body condition scoring, ram MOTs, blood tests to evaluate ewe nutrition levels or identify mineral deficiencies or disease. Mineral analyses of forages can also be made.

Farmers can submit an unlimited number of samples for FWECs to the practice's in-house lab and monitor worm burdens, drench efficacies and coccidiosis levels.

GRADUATE DIARY

Vicki Rhodes

Scarsdale Veterinary Group

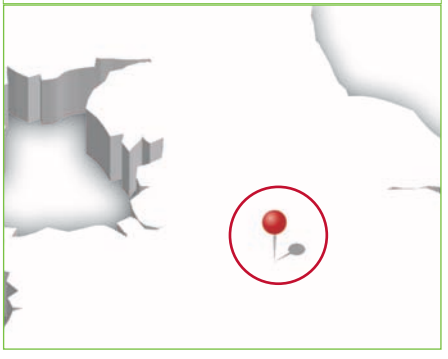
About Vicki

From a young age, Vicki always wanted to be a vet. She spent a lot of time working on various farms prior to gaining a place at Liverpool University to study veterinary science.

After graduating in 2015, Vicki started her veterinary career with a 12-month internship at the farm animal department at University College Dublin. She then covered maternity leave at 608 Vets in Solihull, an XLVets practice. She took up her current position as large animal veterinary surgeon at Scarsdale Veterinary Group, based in Derby, in April 2017.

In her spare time, Vicki enjoys breeding and showing a herd of pedigree Simmental cattle with her partner.

ScarsdaleVets



Plenty of calf work: from calvings to Calf Tracker

Scarsdale's Vicki Rhodes will be further developing her interests in working with calves as the practice begins signing farmers up to the XLVets Calf Tracker scheme.

Vicki is one of ten vets in Scarsdale Veterinary Group's farm animal department. The practice's client base is mostly mixed farms and dairy farms. It is centred in Derbyshire, but also extends across to Nottingham, up to Mansfield and down to Lichfield.

Vicki explains: "We are in one of the Edge areas for TB, and so are testing herds every six months. We've got two TB testers, and the rest of the work is spread between the vets.

Calf Tracker

"I really enjoy working with calves. In my first job, at University College Dublin, I gained a lot of practice in surgical procedures in calves, especially calf hernia surgery.

"I'll be working even more with calves now that the practice is joining the XLVets Calf Tracker scheme. For example, I'll be showing farmers how to check their colostrum quality and advising on aspects of general husbandry.

"We have been encouraging the use of calf jackets, and recommending that these are worn until weaning. The farmers who have used them have been very impressed by the increased growth rates in their stock.

"We already have two Vet Techs at the practice who provide a monitoring service for pneumonia in calves. They carry out regular checks using the University of Wisconsin scoring system to determine if treatment is needed or not.

"After joining the Calf Tracker programme, farmers will be recommended to weigh their calves on a regular basis to monitor growth rates."

Support and learning

Vicki has just gained a certificate in Dairy Herd Health. She explains: "This two-year course went into a lot more depth than my degree, and has given me a more rounded knowledge on aspects of dairy health, analysis and report writing."

Vicki also attended the XLVets Farm Graduate Development Programme which involved days spent learning key skills at several XLVets practices, along with other graduates.

"It's always good to talk to other vets, both relatively new graduates like myself and senior partners. I picked up several good tips. For instance, when called out to a calving, I now set a timer, and if we're not making any progress after 20 minutes, we'll carry out a C-section.

"My biggest job satisfaction comes from assisting with a calving and producing a live calf and cow. Sadly this isn't always possible, so another tip was to take photos as a morale boost for when there's a run of 'rubbish' ones. There will always be times, no matter how many years I've been in practice, when nature is just against us."

"I think, wherever you work, it's important to have a good supportive team around you, and I've certainly got that here."

FarmSkills

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XL Vets

FarmSkills workshops coming up

North

3 April 2018	DIY AI	Bishopton Veterinary Group
6 April 2018	Practical Calving	Bishopton Veterinary Group
10 April 2018	2 Day Foot Trimming	ProStock Vets
25 April 2018	DIY AI	Shropshire Farm Vets
9 May 2018	Cattle Mobility and Foot Trimming	Capontree Veterinary Group
9 May 2018	DIY AI (4 day)	Lambert, Leonard & May
15 May 2018	DIY AI	Bishopton Veterinary Group
17 May 2018	Foot Trimming (1 day)	Lambert, Leonard & May
22 May 2018	Mastering Medicines	Wright & Morten
5 June 2018	Sheep Lameness	Bishopton Veterinary Group
6 June 2018	Cattle Mobility and Foot Trimming	Capontree Veterinary Group
7 June 2018	2 Day Foundation Foot Trimming	Bishopton Veterinary Group
26 June 2018	DIY AI	Bishopton Veterinary Group
10 July 2018	Smallholder Skills - Sheep	Bishopton Veterinary Group
17 July 2018	DIY AI	Bishopton Veterinary Group
20 July 2018	Mastering Medicines	Bishopton Veterinary Group

South

17 April 2018	2 Day Foot Trimming	Synergy Farm Health
24 April 2018	DIY AI (3 day)	Synergy Farm Health
25 May 2018	Cattle Mobility Scoring	Synergy Farm Health
12 June 2018	Practical Lambing	Tyndale Vets
12 June 2018	Worm Egg Count Workshop	Synergy Farm Health
25 June 2018	DIY AI (4 day)	Shepton Veterinary Group
17 July 2018	Worm Egg Count Workshop	Synergy Farm Health
20 July 2018	Calf Rearing - Birth to Weaning	Hook Norton Veterinary Group

Please note dates are subject to change

For more workshops and to book online visit us at **www.farmskills.co.uk**

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