Livestock matters

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Good fertility fundamental for efficiency

A look at some of the key factors affecting breeding performance in herds and flocks

Planning ahead to improve efficiency

Pre-breeding preparations for block-calving dairy herd

Ensuring rams are fit and fertile

Pre-breeding checks to maximise ewe pregnancies

Tightening the calving block

Using heat synchronisation and AI in suckler herds

Improving fresh and dry cow care

Management changes boost fertility and milk production

XL Vets Farm

Welcome to the Autumn issue of Livestock Matters

Rachel Queenborough

the editor

The themes of fertility and efficiency run through this issue. They are closely linked as good fertility is fundamental for efficiency, which in turn drives production and profitability.

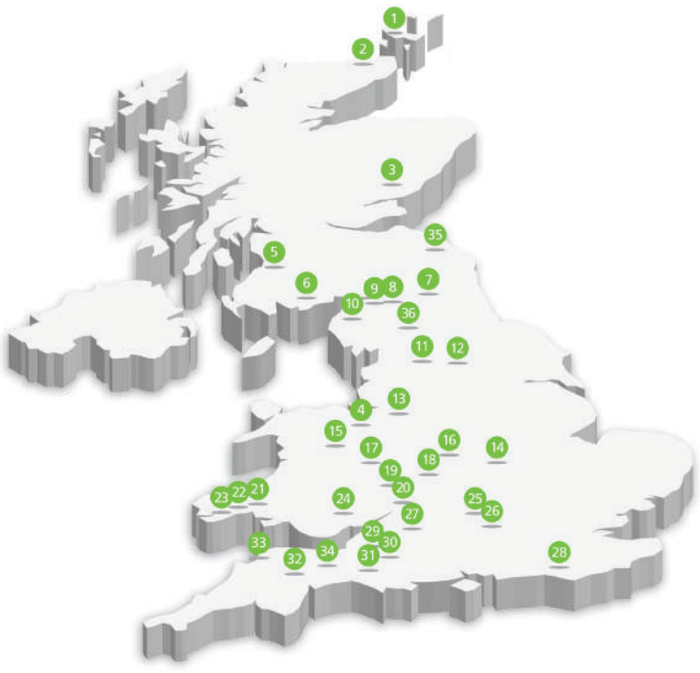
The fertility of a breeding animal is influenced by a wide range of different factors. In this autumn issue, Lee-Anne Oliver of Scott Mitchell Associates outlines the pre-breeding checks needed for rams to ensure their fertility and maximise ewe pregnancies.

Pre-breeding checks are also advised by Shepton Vets' Rob Powell as part of a schedule of activities to assure breeding efficiency for Matt Cradock's block-calving dairy herd. Capontree Vets Brian Mundell and David McCrea show how two block-calving suckler herd farmers are using heat synchronisation and AI to improve their efficiencies.

On dairy farms, changing the environment or herd management to improve fertility can boost annual milk production and profit margins. For farmer Charlie Meredith, simply re-grooving the floor in the cowshed improved heat detection and 21-day pregnancy rates. For farmer Greg Fletcher, increasing the frequency of his vet's fertility visits and creating a new management group for fresh cows were amongst the changes that boosted herd income.

Looking ahead, as lambing time is approaching on some farms, Adelle Isaacs and JP Crilly of Larkmead Vets illustrate how ensuring pregnant ewes are appropriately fed will help assure a trouble-free lambing.

We hope you enjoy this issue of Livestock Matters.



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Autumn Edition 2019

XLVets is a collaborative group of over 450 farm vets with dedicated support teams, who endeavour to be nationally recognised as the 'quality mark' for livestock veterinary services.

Learn more...

3 key goals for block-calving dairy herd: **simplicity, efficiency and profitability**

Dairy farmer Matt Cradock and his family have three key objectives in the running of their autumn block-calving herd: to keep things simple, to be efficient, and to be profitable.

Helping them to achieve these aims with practical management advice and veterinary support is vet Rob Powell of Shepton Vets: a tightening up of the calving block has been a key focus over the past 18 months.

Rob Powell
Shepton Vets

At Rodmore Farm near Shepton Mallet, Matt Cradock, together with his parents Steve and Alison, is running an autumn-calving crossbred dairy herd of 250 cows, on a paddock grazing system.

The herd is averaging yields of 7,000 litres per lactation, with butterfat at 4.30% and protein 3.45%; milk is sold to a local cheesemaker.

Matt explains: "The milk quality is achieved through breeding rather than feeding: the cows are a 3-way cross of Norwegian Red, Flekvieh and Holstein/Friesian genetics.

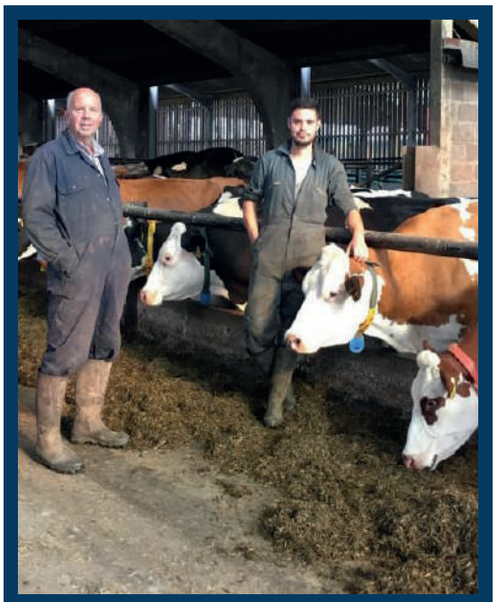
"There's just me and my dad, and a relief milker working with the cows, and my mum helps rear the calves. We keep it simple: we don't feed maize or wholecrop silages. Cows just have grazing or grass silage, and cake. We are getting 4,000 litres of milk from forage and 3,000 litres from cake which is fed in the parlour, at a rate of 1.8t concentrate/cow/lactation.

"We don't need to push cows any harder. We'd rather have 7,000-litre lactations from 7-lactation cows."

A tight calving block is especially important to the Cradocks as there are limited facilities and labour, and they need to run the milking herd as one group.

Matt adds: "We start calving mid-August and want to calve everything we can outside. Bull calves are sold privately at 2 weeks. Then by Christmas, we want all the heifer calves weaned, and all the beef calves gone."

Rob adds: "The Cradocks currently run a 15-week block and are working towards a 12-week block. The calving pattern has been significantly improved over the past 12 months and this year 90% of the cows and maiden heifers will have calved by week 9 of the calving block."



Matt and Steve Cradock

A 'Repro Review'

Before the start of the breeding season, Rob meets with Matt to review the previous year's results and go through a comprehensive checklist to set the plan for the next few intensive weeks of activities.

Rob says: "It's important to have a plan and make sure everyone knows who is doing what, and when, before everyone gets really busy.

"In block-calving herds, the stakes are high. A tight calving block is key to efficiency. But while culling any outlying cows may improve a calving pattern, it's not resolving the underlying reason the calving pattern slipped in the first place. Farmers can end up culling lots of cows and then having to rear lots of heifers to make up numbers again. With heifer-rearing the second highest cost on a dairy farm, this impacts on profitability."

Rob runs through a Repro Review with Matt ahead of the breeding season and schedules the activities for this busy period

The 'Repro Review' covers 6 main areas:

1. **Cow health/nutrition:** infectious diseases, body condition scoring, trace element testing and a plan regarding endometritis detection/treatment
2. **Heifer management:** target growth rates, determining when they will be served in relation to the cows, and how, i.e. natural service, AI, synchronisation
3. **Heat detection:** the type of system to be used and how it will be done, and whether the farm will be recording heats prior to the start of the block
4. **Non cycler management:** Treatment timing, e.g. at the start of the block if pre-mating heat detection is done, or 3 weeks after serving; the target number of cows to serve in the first 3 weeks and a plan for the late calving cows
5. **Semen management:** genetics overview, sexed semen options, straws of dairy semen required based on the previous year's conception rate and the total length of the block in relation to expected empty rates
6. **Bull management:** calculating how many bulls are required for the number of open cows and at what point they will go into the herd; management of bull teams, team rotation, infectious disease risks and semen testing...

A tighter block

Last season, the cows and heifers calved down over a 15-week period, a 3-week tighter block than the previous year.

Rob explains: "This was achieved by starting pre-mating heat detection and treating non-bullers at the start of the block. Bull numbers were increased, and bulls were kept in the same teams on a strict rotation.

"In addition, last year the maiden heifers were served two weeks before the cows and this has helped this year's calving pattern. By week 4 of the main calving block, over 90% of the maiden heifers will have calved."

Breeding strategies

Heifers are not AI-ed but will be run with the farm's three Angus bulls for 9 weeks (starting 2 weeks earlier than cow breeding).

Cows are AI-ed by Matt or Steve over the first 7 weeks of the breeding period: dairy straws are used for the first month, and then Angus straws. For the last 8 weeks of the block, they will be bred using the farm's three bulls and three hired bulls.

Matt explains: "We hire in bulls each year, always sourcing them from the same farm which is free of leptospirosis and IBR. Bulls come ready-vaccinated against BVD."

Rob advises: "Bulls should be vaccinated before their arrival, given a precautionary treatment against Campylobacter, and isolated for a period before they enter the herd."

Although the bulls are BVD-vaccinated, they do still present a risk. Rob has advised that they are BVD 'Tag and Tested' on arrival, to ensure none of them are PI animals.

This year, the farm bulls will be run with the heifers for 9 weeks. After that, they will be taken out and run with the cows for four days on rotation with three hired bulls, for a period of 8 weeks. This gives them time to rest and keeps them fresh. "It's a lot of bull-power, but we want to get the cows in-calf quickly," says Rob.

Matt says: "Having bulls works well for us, so long as there are enough of them and they stay fit and are well-managed."

Last year the 6-week in-calf rate was 54% - the target for Matt this year is 60%. Rob adds: "If we can increase the in-calf rate, then fewer bulls will need to be hired in."

Pre-breeding heat detection

Heat detection is started three weeks before the cows or heifers are due to be served.

Rob explains: "This is an insurance policy to catch any problems before the breeding season starts. The first three weeks are a critical time: every cow and heifer needs to be fit for serving.

"The top 10% of block calving farms will serve 90% of the herd in the first 3 weeks. To do this they will need 80% of the herd to have been seen bulling by the start of serving."

Fine-tuning the plan

Matt and Rob will review performance at the end of the block to fine tune and improve the plan further.

Rob adds: "The target this year will be to have a 6-week in-calf rate of 60% which will create an empty rate of 11% at 12 weeks, or 6% at 15 weeks, depending on how long the bulls stay in with the cows."

A focus on fertility and fresh cows has yielded more milk and more margin

MIDSHIRE FARM & EQUINE
A partnership for health

Hannah Fletcher
Midshire Farm & Equine

In less than two years, Leicestershire dairy farmer Greg Fletcher has increased his herd's annual milk production and boosted margin over purchased feed by over £100,000.

This has largely been achieved by improving herd fertility. This in turn has been improved through changes in nutrition and management, plus more frequent fertility visits by his vet Hannah Fletcher (also his daughter) of Midshire Farm & Equine.

At Woodview Farm, near Leicester, Greg Fletcher is milking 280 Holstein cows, on a paddock-based grazing system, calving all year round, and averaging yields of 10,000 litres/cow/year.

Greg explains: "At the beginning of 2017, I decided I needed to make more milk so I could increase profitability. At the time I had around 200 cows and a calving interval of 411 days. I was going to expand the herd but also I wanted to increase annual yields rather than lactation yields, and thus increase the milk sold per cow per year.

Improving fertility

Greg instigated a number of changes to improve fertility. The first step was to increase the frequency of Hannah's fertility visits – from fortnightly to weekly.

Hannah says: "When a vet is making weekly visits to see the cows in a herd it not only allows us to deal with any problems more quickly, it also stops them from becoming bigger as we can advise on management or dietary changes.

"At Woodview Farm, cows are presented not seen bulling at 40 days; if they are cycling then there's no further action needed. But if there is a fertility issue, for example cystic ovaries, then these can be treated and the cow re-seen the following week to assess its response and give further treatment if needed.

"By visiting weekly, I've four opportunities each month to observe and treat these cases, not two.

Days to first service has shortened from 73 to 61, and calving interval has tightened by more than a month to 375 days.

Improving heat detection

Recognising that there are many factors affecting fertility, and it's a 'jigsaw of pieces', Greg also invested in extra support on heat detection.

Instead of an AI service, he now uses a combined heat detection and breeding service; a technician visits daily. In addition, cows and heifers are fitted with pedometers which flag up the increased activity of a cow in heat for the inseminator.

Heat detection rate has improved from 44% at the start of 2017, to 61% in mid-2019.

Fresh cow focus

With the increased frequency of visits, Hannah was able to identify some other issues, she explains: "Fresh cows were losing condition in the weeks following calving. This would have been having a detrimental effect on their ability to get back in-calf.

"Inadequate nutrition – as indicated by the loss in body condition – will be detrimental to follicle development, and therefore delay time to 1st service, and in turn extend the calving interval.

"To prevent this, we made some changes to the way the herd was managed and fed."

The milking cow herd used to be split into two groups: Highs and Lows. But Hannah instigated the creation of a third group: a 'Fresh Cow' group. This contains cows in their first 80 days of lactation; they are housed full-time, whatever the season.

The High group now consists of cows which are 80-200 days into lactation; as before, these are grazed in the day through summer, and brought inside at night. The later lactation cows, the Low group, are grazed full-time in the summer.

Greg comments: "Another advantage we have found with the new group is that all the fresh cows

A key change has been to put the fresh cows into a separate group and feed them a higher energy ration

are isolated from the rest of the herd and so it's easier for my staff to focus on them.

Each group of cows on the farm is fed a complete TMR that has been formulated to meet their needs. Common ingredients to the rations are four silages: grass, maize, wholecrop triticale and lucerne, plus soyabean meal, rapemeal, maize distillers, molasses, caustic wheat, vitamins and minerals.

Greg's nutritionist has formulated the TMR for the Fresh Cow group so that it contains more straights and a higher nutrient level than the ration for the High group.

Greg mixes and feeds the TMRs once a day, he comments: "For the fresh cows, we all make sure they have feed in front of them at all times, pushing it up 8 or 9 times every day."

He admits: "There's still room for further improvement with the fresh cows, but I'm restricted by the building facilities. If I had a bigger shed, I'd also have a longer 'Fresh Cow' period."

Dry cow focus

Hannah explains: "To help cows get back into calf, it's important to keep them healthy and support them through the transition period and at calving: this will help prevent milk fevers and retained cleansings which are fertility 'disasters'."

The Dry cows are divided into 2 groups: far-off cows are allowed out to graze, and then transition cows – those in the last 2-3 weeks pre-calving – are fed inside.

Greg explains: "Our system has evolved over time. We don't feed a DCAB diet but use a calcium binder in the feed. Previously, metabolic diseases like milk fever and ketosis were a problem. But we've not had a clinical milk fever case for the past 18 months, and no LDAs for the past year."

At Woodview Farm, Hannah has advised that all newly-calved cows are given an energy drink straight after calving.

Herd performance at Woodview Farm	January 2017	July 2019
Heat detection rate (%)	44	61
Days to first service	73	61
Expected calving interval (days)	411	375
Days in milk	182	162
Average 305 day production (Litres)	8,800	10,000
Average days to 1st heat	71	45
Days to pregnant	123	99
Pregnancy rate (%)	18	28
Conception rate @ 50-90 days in milk (%)	37	44
100-day in-calf rate (%)	43	60
Feed rate (conc. used per litre)	0.29	0.28
Yield from forage (litres per cow)	2,816	3,246

Hannah explains: "In the 12-hour run-up to calving, cows will have reduced intakes of feed and water. So a post-calving drink is important not only to re-hydrate them, but also as it can deliver minerals – including oral calcium, vitamins and energy into the cow."

Cows are milked within the first 12 to 24 hours of calving, and are then put straight into the Fresh Cow group.

Fertility overview

Hannah says: "The national average pregnancy rate is about 15-16%. By employing a breeding management service, this can increase to around 22%. The very best farmers are achieving 30% – the herd at Woodview Farm is not far off this figure having improved dramatically from 18% to 28%.

"The 100-day in-calf rate used to be 43% and is now 60%."

Greg says: "The focus on fertility has truly paid off. In the past 12 months, the herd's annual milk yield has increased by 870 litres/cow, and my records show an increase in margin over purchased feed of £138,000."

Hannah adds: "The increased frequency of the routine fertility visits ensures we keep on top of the reproductive health and fertility of the cows. Individual problem cows can be treated promptly, and at herd level, changes in management practices can be discussed and implemented."

Weekly fertility visits and management changes have seen Greg Fletcher's herd fertility improve and boosted annual milk production, and profits too

Getting rams ready for breeding

...and watching that they do!

Last autumn, the vets at Scott Mitchell Associates tested 136 rams, giving them a full physical examination and evaluating their semen quality. Only 66% passed the tests and 15% had only marginal passes. So, on average, for every three tups on a farm, one is sub-fertile or infertile.

Here, vet Lee-Anne Oliver runs through the pre-breeding checks that should be made on all tups before they are put in with the ewes, in order to maximise lamb numbers.

Lee-Anne Oliver
Scott Mitchell Associates

"Farmers need to be gathering up their rams well in advance of the breeding season to check their health and fitness for the job ahead," says Lee-Anne.

"Rams need to be looked after all year round, with their feet kept in good repair, and in receipt of the same treatments as the rest of the flock; for example, clostridial and footrot vaccinations, worm, fluke and ectoparasite treatments.

"The breeding inspections then need to be done 4-6 weeks before they are put in with the ewes. If they are tested too far in advance of the season – depending on their breed – they will have a reduced fertility anyway. For the flocks around our practice in Northumberland, tupping time starts on 5th November. So we don't test anything before September.

Physical examination

"It's amazing how many tups fail on the physical examination even before the semen quality is tested," says Lee-Anne.

"Giving a ram a physical examination is something that can be done on the farm by a stockperson. There are a variety of informative leaflets and website sources on this subject. For instance, there's a Fact Sheet on 'Examination of the Breeding Ram' available to download from the XLVets website.

"The physical examination will include checking their general soundness and locomotion plus a closer inspection of their eyes and teeth. Rams should have a condition score of 3.5 out of 5, at the start of the tupping period. Good nutrition is important for them, as well as the ewes.

"The sheath and brisket should be checked for sores, and treatment given as appropriate.

"The health of the testicles should be checked by palpating them – they should feel as firm as a tensed bicep. If you palpate enough testicles, you'll get good at it!

"Lumps on testicles can also be present, these arise for a number of reasons: trauma; infections from the bloodstream or a urinary tract infection that has migrated up; or a semen blockage from ruptured sperm tubes. Sometimes further investigation is required to remedy the situation.

"Rams which are lame, have poor teeth or lumps in a testicle will fail the examination.

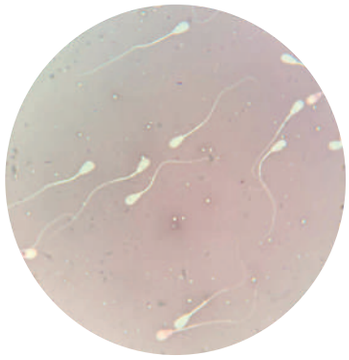
Semen assessments

"Getting the semen evaluated in addition to the physical examination is 'gold standard' practice.

"We usually get asked to test semen if a tup has a history of being subfertile, for insurance purposes, or immediately pre or post a sale to be absolutely sure it is fertile.

"Semen testing involves electro-ejaculation to stimulate the sex glands and produce a semen sample.

"Under the microscope we look for good motility of sperm, i.e. that they are swimming vigorously and in a progressive direction – not around in circles.



We then put a coloured stain on the slide and look at a sample of 100 sperm and check they have formed properly – we want at least 70% of them to be 'normal' to pass the test.

Management

"Some farmers like to run several tups with a group of ewes, but while this may ensure maximum lambs, it prevents any recording of individual ram performance.

"There's also a risk with running multiple tups that one of them predominates and may push the others away from the ewes. If he's not been tested and is in the 33% that's 'firing blanks' then this will seriously affect lambing numbers.

"A fertile tup is expected to cover 80-100 ewes over a 3-week period. The more lambs he can father for his worth, the better return on investment! But the actual ratio used will also depend on the farm and the area the ram must cover to find the ewes.

"Vets can advise on how to get the best fertility from a tup, and thus how many tups need to be on the farm.

Rams need to stay fit and fertile throughout the tupping period to ensure all ewes are in-lamb at the end

Tup-watch!

"Once tups are in with the ewes, it's important to keep an eye on them and watch their behaviours.

"Libido is an essential breeding factor, yet it's not covered by the physical exam and semen testing. So farmers need to take the time to make their own observations. Inexperienced young rams may not actually know what to do.

"It's also important to remember that a semen test is just one exam on one semen sample on one day. Fertility can change. So watch for returns: if a ram has been raddled blue for the first 15 days and then it's changed to red, but sheep have both blue and red raddles because they've not conceived, investigation is needed. Is the tup at fault? Or is there something wrong with the ewes?

"Fit rams can go lame during the breeding season. The pain and discomfort they suffer means they won't want to go looking for a ewe, let alone mount her. The semen quality of a lame ram will also drop. So inspect any lame feet and treat according to your farm's foot health protocol, and be prepared to replace with another ram.

"Farmers should also be aware that raddle harnesses can sometimes rub, leading to sores developing under a ram's 'armpits'. If rams feel constricted and uncomfortable then this is not conducive to a good libido. So when handling the rams to change over the raddles, check for sores, and check the harness is not too tight. Also check their body condition score again – if they've lost a lot of condition, then they will need extra feeding and/or fewer ewes.

End point

"Thirty-five days is the accepted norm for the tupping season – based on two heat cycles in ewes. So tups need to be removed after this point.

"If tups are left in longer, then it's trickier to manage the nutrition of the pregnant ewes. The lambing period also becomes extended creating a big age difference between lambs: the youngest will always be the slowest to finish and end up taking up grass which could be kept back for the next season.

"Also, when the flock is scanned, it won't be possible to differentiate between an empty ewe and one which became pregnant late in the tupping season and has a small foetus. Ewes may be culled as barren, when they are not.

Test your tups!

"Sheep farmers need to be aiming for a compact lambing period with as many ewes in-lamb as possible. That's why it's important to have fit and fertile tups running with the ewes for the whole breeding period.

"If you've not already made plans to do so, make sure you physically check your tups are fit, and ask your vet about semen-testing."

Calculated rationing for pregnant ewes **ensures a trouble-free lambing**

Larkmead VETS

Ensuring that pregnant ewes are correctly fed is the foundation to a successful trouble-free lambing. But forage qualities vary from year to year, as can the nutrient requirements of the ewes. So feeding regimes will need to be adjusted each time.

Vets Adelle Isaacs and JP Crilly of Larkmead Vets have been supporting Jess Allen of Winterbrook Farm, near Didcot, to ensure rations and feeding regimes provide sufficient energy and protein to prevent metabolic diseases and ensure a healthy crop of lambs.

Jess Allen has taken over the management of the family's flock of 450 Welsh mule ewes. These are put to either Suffolk, Texel or Charollais rams in September, and start lambing down indoors from the end of February. The flock is mainly grazed on downland grass with lambs finished on grass and creep feed.

JP Crilly
Larkmead Vets

Flock health

Adelle has been working with the Allens for the past 7 years, and each July reviews and revises their flock health plan.

Metabolic diseases – such as twin-lamb disease – and vaginal prolapses had been a problem on the farm in the past. To flag up any nutrition shortfalls, so that feeding could be adjusted, metabolic profiling of pregnant ewes in the 2-3 weeks prior to lambing was introduced ahead of the 2019 season.

Adelle Isaacs
Larkmead Vets

How much cake?

In the run-up to the start of lambing, in December 2018, Jess purchased some 18% CP rolls to feed to the ewes, as well as some high energy feed blocks. She sought advice from Adelle on exactly how much cake should be fed.

Adelle explains: "The first step was to get the forages analysed.

"Getting a forage analysis is well worthwhile. It enables us to identify which are the better quality silages: the poorer forage can then be used in early pregnancy, or for non-pregnant animals, and the higher quality silage reserved for feeding closer to lambing."

At Winterbrook Farm, there was a choice of three cuts of grass silage.

Adelle asked one of her veterinary colleagues, JP Crilly, to help investigate the options. He explains: "The third cut silage was poor in energy and protein levels, so I advised that only the first and second cut silages should be fed to the pregnant ewes as these were higher in protein. However, they were low in energy, and so supplementary feeding was needed.

"If ewes are underfed, this reduces the quality and quantity of both colostrum and milk. It also means lambs are born with less brown fat reserves, and so are at greater risk of death from hypothermia.

"Conversely, if ewes are overfed concentrates, then this can lead to sub-acute rumen acidosis in which rumen efficiency is reduced, and the possibility of vaginal prolapses increased. Like cattle, over-conditioned ewes are also more likely to have difficult births.

"Where sheep are given too much cake in one go, then cases of acute acidosis can arise in which they can die. Early signs include dullness, scour, a drunk appearance and weak animals.

"Overfeeding to any degree is money wasted on feed that isn't needed."

Jess Allen and her flock

2019/2020 winter rations

JP formulated two rations: one for the gimmers and ewes carrying singles, and one for the ewes having twins or triplets.

The calculations took into account ewe bodyweights, condition scores, foetus number, the forage analyses and nutrient content of the rolls.

JP explains: "I estimated the dry matter feed intake per day, and what the forage alone could provide – we want to maximise forage intakes as this is the cheapest form of energy and protein.

"All ewes had ad-lib access to silage in the 6-week period before lambing: 1 ring feeder per 25 ewes as a maximum. Ewes also needed to have 45cm of trough space to prevent competition for feed."

In the 2-week run-up to lambing, the ewes (and gimmers) carrying singles were fed a daily flat-rate of 0.4kg/ewe/day of the 18% CP rolls. This was split into two feeds to prevent acidosis.

The feeding of those carrying twins and triplets began 6 weeks in advance of lambing. The starting rate was 0.4kg/ewe/day which was increased over the week to a flat-rate of 1kg/ewe/day for the next 5 weeks. Again, ewes received this in two daily feeds.

JP adds: "There is a limit to how much sheep can have as a daily intake of cake because of the risk of acidosis. To ensure the triplet-carrying ewes received enough energy, they were slightly overfed in the 6 to 4 weeks pre-lambing to allow them to build up their body reserves. They could then utilise these in the last 2 weeks of pregnancy.

"If farmers don't scan their ewes when indoor lambing, then they will struggle to allocate the correct nutrition," warns JP.

"And if Jess had just followed the previous year's feeding regime, she would have been overfeeding the singles and underfeeding the ewes carrying triplets."

To check the rations were meeting ewe requirements, blood samples were taken for metabolic profiling. The results showed that energy needs were being met. The short-term protein intakes – as indicated by urea levels – were also on target.

Body condition scoring

As a matter of routine, Jess condition scores the sheep whenever they are gathered in for any treatments.

"Not enough farmers are condition scoring their ewes," warns Adelle. "Yet it's important, because the effects on productivity are long-lasting. If ewes have fallen to a condition score of 2 or less, then even if this is improved by mating time, they will still have a reduced ovulation, and hence reduced performance potential.

She adds: "Ewes need to have a body condition score of 2.5 to 3.0 when they go into the lambing shed."

A trouble-free lambing

This attention to ewe nutrition paid off: there were no cases of metabolic diseases in the flock in the 2019 season. Lamb vigour also noticeably improved, Jess comments: "Last year we had some dopey lambs, but this year they were all born much livelier – we didn't have to latch any onto a teat."

Adelle comments: "Thanks to the right ewe nutrition, lambs were born with good vigour. The ewes would have been producing good levels of colostrum and milk, and the lambs did very well at lambing in 2019. Add to that, the good hygiene and pen management, and competent staff at the farm, it meant only 5% of lambs were lost between birth and turnout. This is a good result and an improvement on previous seasons.

"But every year is different. So we'll be going through the same process next year – analysing forages and devising appropriate feeding regimes. Providing the right nutrition to ewes is the foundation to a successful trouble-free lambing."

Checklist for 2020 lambing

- Get forages analysed
- Reserve best quality silages for pregnant ewes
- Body condition score the ewes – are they thin or fit?
- Scan the flock and feed according to foetus number
- Seek advice on rations – don't just feed out of habit
- 3 weeks before lambing, use metabolic profiling to check nutritional requirements are being met

Thanks to the right ewe nutrition, lambs were born with good vigour

Management changes improved fertility and health and boosted annual milk yield

BELMONT FARM & EQUINE VETS

After moving the whole dairy herd onto an automatic milking machine system two years ago, Herefordshire farmer Charlie Meredith and vet Nick Gibbon of Belmont Farm & Equine Vets have continued to work together to improve the efficiency of the herd.

A number of management changes have been made which have reduced lameness and improved cow health, fertility and production. The herd is now yielding another 2,500 litres/cow/year.

Nick Gibbon
Belmont Farm
& Equine Vets

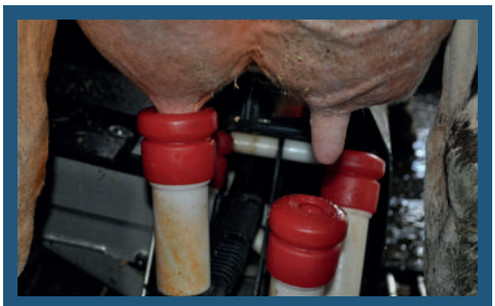
Two years ago, Herefordshire dairy farmer Charlie Meredith took over the running of the family business. At that time, 300 cows were being milked at two sites, a mile apart.

Charlie explains: "At one farm, the fresh cows were being milked on two automatic milking machines. Once they were back in-calf, we'd move them to Lowdy Hall Farm where they stayed for the rest of their lactation and were milked in a conventional parlour."

This meant every cow was moved twice each year. With cows on an all year round calving pattern, transporting small groups of cows took up a lot of time.

"So to save time and labour," says Charlie, "we made the decision to relocate the two robots up to Lowdy Hall Farm, and buy a third one. The other farm was to be used only for youngstock."

During the transition onto the all-robot system, as each machine was commissioned at the new site, Charlie set about trimming herd size back to 210. Culling criteria included teat placement, udder score, fertility and lameness.



Cows are milked an average of 3.1 times a day, with a 'box time' of six and a half minutes

"This system requires three people: there's me, my uncle and one full-time worker. Even though we've got robots, it still takes the same number of hours. There is the daily routine maintenance to clean the robots and checking that all the cows have been milked. And someone is always on call 24/7. But it's a different lifestyle – we have a greater flexibility of our time."

Improving pregnancy rate

"When the herd was first moved up here, fertility was poor," says Nick. "This was a bit of a hangover from historic lameness, but we found some other factors too.

"Using the data stored in the robots, we constantly monitor the 21-day preg rate. It gives a very up-to-date measurement of fertility efficiency, and we can soon see if there's a problem.

"Back in 2017, not enough pregnancies were being generated on a weekly basis. It was clear from the data that heat detection rates – at 43% – were not good enough. Given the usually good ability of the robot system to identify cows in heat by monitoring their activity, I was concerned there were environmental factors involved.

"I'd noticed that whenever Charlie and I were in the cow shed, we'd be walking carefully so as not to slip on the concrete flooring which had worn smooth. I realised this was also making cows reluctant to mount others, and so heats were not being seen. The solution was simple: the concrete was re-grooved.

"Heat detection rates in the last 12 months – since the grooving – have been much improved with a rolling average of 67%, with peaks of 89% of eligible heats detected. The 21-day preg rates have also dramatically improved from 14.5% to a 26% rolling annual average, a huge improvement in efficiency," says Nick.

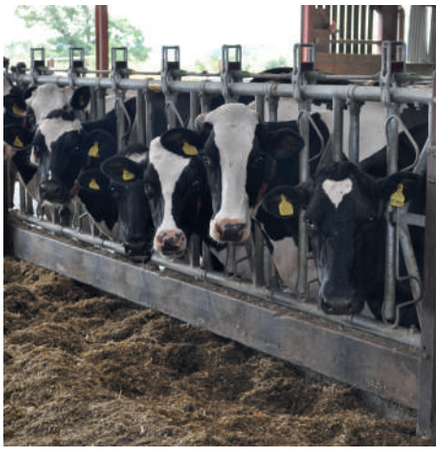
Dry cow care

Eighteen months ago the drying-off procedure was changed: the dry period was extended from 40 to 60 days to allow for a change in dry cow therapy treatment and also to allow cows more recovery time after lactation.

Charlie adds: "Robots have meant cows are giving more milk at drying off, but they are now getting that extra rest in-between lactations. As a result, we've had better dry cow cure rates. Also, we're not getting cows that had low cell counts at drying-off developing high counts in early lactation."

Nick says: "A key part of mastering fertility is ensuring a good transition. Cows will then have better dry matter intakes at calving and be able to keep up with the energy demands of lactation. If we can feed them to avoid calcium deficiency and early lactational ketosis then they are also in better uterine and ovarian health, and more likely to return to normal cyclicity sooner in lactation.

"When I carry out the post-natal checks, it's rare to find a dirty cow. Milk fever rates are very low, occurring in less than 1% of calvings, and retained membranes are also infrequent."



Breeding policy

Charlie: "We're not trying to chase yield: the cow's health and welfare is always at the forefront of our decisions.

"We've become more proactive in bringing cows to heat if we've not seen a natural heat. We apply a voluntary waiting period of 42 days. Then if a cow hasn't shown a heat at 60 days, Nick will synchronise her. Heifers have gone through a lot of change and have very flat lactation curves, so we give them more time, leaving them to 70 days before we serve them.

Less lameness

An unexpected benefit to come from the robot installations has been a reduction in lameness incidence.

Nick explains: "Historically, digital dermatitis had been a problem in the herd. The previous footbathing set-up was not easy to do well enough, or frequently enough.

"When the new robots were relocated, permanent footbaths were built at each one's exit, so cows immediately walk through a footbath after each milking. A large plug was installed into each one to make emptying them quick and easy."

Every evening, Charlie fills the footbaths with a 3% formalin solution and leaves them for the cows to walk through over the night.

Nick says: "In 2017, according to the trimming records, 60% of lameness lesions were due to infectious causes. However, at the last health review, only 28% of lesions were caused by digital dermatitis.

"We have also seen a reduction in lameness cases scoring 2 and 3 – scores which are associated with infectious lameness. Digital dermatitis is still present, but it's no longer the dominant cause of lameness."

The footbaths are emptied in the mornings and re-filled each night

"There were a lot of reservations from others with robotic experience about siting footbaths at the robot exit. But Charlie and I decided that with some thought and a good design, to take the plunge. The results speak for themselves."

"We are getting more milk per year by getting cows back in-calf quicker. Our 100-day in-calf rate has improved and currently stands at 76%.

Going forward

"We've been with Belmont Vets for about 10 years now," explains Charlie. "Under their guidance we've improved nutrition and fertility and also got some fresh ideas.

"Two years ago, cows were giving just under 8,000 litres/cow/year but now yields are up at 10,500 litres. We've maintained the same feed conversion rate at 0.30 and we are just starting to see a reduced pence per litre feed cost. Hopefully with a few more interventions and improvements we will be able to increase milk from forage further."

After making a series of improvements to herd management, Charlie Meredith is now getting an extra 2,500 litres/cow/year

Vet tech role is a support to farmers and vets, and of benefit to livestock too

Craven farm vets

Mel Pickard
Craven Farm Vets

More and more farm practices are employing veterinary technicians – vet techs – to provide a range of useful services to farmers and support their veterinary colleagues. Ultimately there's a positive impact on the health and performance of livestock too.

At Craven Farm Vets, vet tech Mel Pickard is enjoying her role in which she undertakes a wide range of different activities on farms and also assists with sheep breeding services. Here she outlines the key areas of her diverse job.

The specific work a vet tech may carry out will vary depending on the vet practice and its client base, and on the services available in the local area. Thus, vet techs will vary in their experience, knowledge, and skills.

Mel joined Craven Farm Vets in 2016 with a degree in equine science and vast experience working within the sheep, beef and dairy industries. Her love of animals and a desire to learn meant this role was well suited to her.

Mobility scoring

One of the key routine services provided by Mel is mobility scoring.

"Lameness is such a big factor affecting fertility and milk production," says Mel. "Depending on the milk contract or farm assurance scheme, I can be mobility scoring on a farm every 3 or 6 months, or annually. I think more milk buyers are going to be increasing the frequency of this monitoring.

"I also visit farms before their scheduled foot-trimming visit so I can provide a list of cows that need treatment, as well as monitor the progress of the herd's mobility."

Mel has become an RoMS-accredited scorer (Register of Mobility Scorers). This involved completing an approved training course and passing an on-line test. Membership is renewed annually and involves another on-line test in which mobility of cattle in video clips is scored. To ensure consistency, the scores submitted by each scorer are examined to check they are in line with others.

Mel adds: "I've also been trained to foot-trim which I find very interesting and really enjoy. This links in well with mobility scoring and has helped me better understand the causes, and spot lameness more easily.

An extra hand

"I can provide an extra pair of hands for both farmers and vets," explains Mel.

"Some farms can struggle to get staff when there's TB testing for instance, so having me there makes the day go quicker.

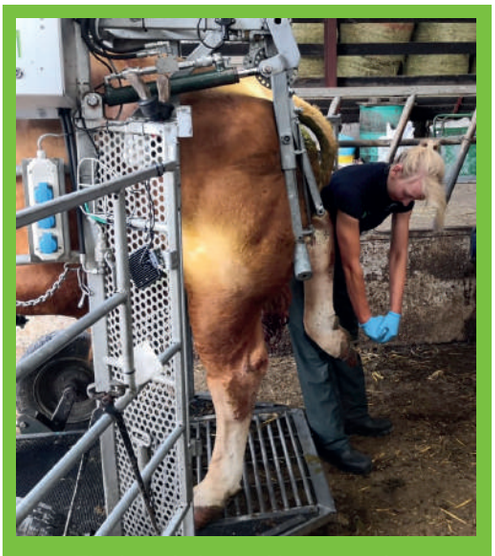
"Other useful services I provide, which save time for farmers are freeze-branding, vaccinating cattle and shearing small sheep flocks.

"I will often accompany vets to lend a hand when there's an LDA or a Caesarean: I scrub up the animal, prepare it for the operation and assist the vet when they need me to.

SQP qualifications

"As soon as I joined the practice, I started studying for an SQP qualification. I'm now a G-SQP – this means I'm 'suitably qualified' to advise on VPS medicines for both farm animals and equines.

"I've also learnt how to carry out worm egg counts under the microscope. I feed the results back to one of our vets, for them to have discussions with the farmer about the required treatment."



The knowledge Mel has gained in learning to foot-trim supports her work in mobility scoring

Calf care

Calf care is another area Mel is involved with. She uses the XLVets Calf Tracker programme which monitors the performance of calves in the first three months of life; it enables sub-optimal performance to be identified so improvements can be made.

Weigh-banding calves enables their growth rates to be monitored and ensure they are on-track

Mel explains: "For clients using this service, I'll make weekly or fortnightly visits to weigh-band calves to check their growth rates are on track. This information then goes back to the farm's vet so discussions can be had if management changes are needed.

"On busy farms, especially if labour is stretched, then some elements of calf management can get overlooked. I carry out routine disbudding and vaccination programmes.

"We're looking to restart our calf club in the near future, and plan to hold regular meetings which will provide opportunities for farmers to share experiences and ensure they are getting their calves off to a good start."

Mel's role also includes carrying out faecal egg counts back at the practice

About Mel Pickard

Mel, a farmer's daughter from Lancashire has always had a passion for animals and farming.

As well as working on her family's sheep and beef farm from an early age, she has worked on various other farms and equestrian establishments, where she gained a range of skills from sheep shearing through to horse-breaking.

With a degree in Equine Science behind her, and years of experience working within the agricultural industry, she knew that the vet tech role would suit her down to a T.

About Craven Farm Vets

Skipton-based Kingsway Vets had been a mixed practice up until November 2018 when the farm side of the business was split away and a new stand-alone independent practice created: Craven Farm Vets.

The practice is owned by two directors: vets Andrew Barratt and Jonathan Stockton. In all, there are six full-time vets, vet tech Mel Pickard, a full-time hoof-trimmer, a hoof-trimming apprentice and four office-based staff, two of whom are also SQPs.

The practice's main client base is in the Yorkshire Dales but stretches into Lancashire and West Yorkshire. There is an equal mix of dairy, sheep and beef farms within the practice.

Sheep breeding services

From September through to February, Mel will be working for the practice's sister company – Craven Sheep Breeding – which provides artificial insemination (AI) and embryo transfer (ET) for ewes, as well as ram semen collection and freezing services.

Mel explains: "Demand for these breeding services is growing. September and October are our busiest months in order to get the February/March born lambs.

"Farmers may have an expensive well-bred tup, and we carry out semen collection, freezing and storage as an insurance policy. There's also a good market for selling frozen semen off high genetic merit rams.

"Most of our AI work is with smaller pedigree flocks but a large amount is done with commercial ewes. We often collect semen from Blue-faced Leicester rams and then AI Swaledale ewes in big batches. The aim being that the resultant mule lambs will look like 'peas in a pod' which will help them sell well at mule gimmer lamb sales."

The company began offering ET in 2017. Mel explains: "So far this has mainly been for pedigree Beltex and Texel sheep, but we have also done Blue-faced Leicesters and even Swiss Valais Blacknose ewes. The number of embryos collected from a ewe can vary dramatically, and as the embryologist it's always exciting to see how many the ewe has produced, and if they are fertilised or not.''

"It depends on the numbers involved, but if there are more than 30 ewes to be AI-ed, or more than four ewes to flush, then we go out to the farm to carry out the work."

September marks the start of the sheep breeding season, Mel adds: "I love this time of year and always look forward to it coming around. I'm kept constantly busy. The majority of my time is focused on semen collection/assessment and embryology, which is something I really enjoy!

"Every day is different when you're a vet tech, you're always learning, and I certainly never get bored!"

Tightening the calving block using heat synchronisation and AI

Heat synchronisation programmes, combined with AI, can tighten the calving period in block-calving herds by bringing late calvers back into line. In the short-term this makes herd management much easier; in the long run the benefits continue as the resultant calves will be more uniform in age, and therefore more easily managed, reared and sold.

Brian Mundell
Capontree Vets

David McCrea
Capontree Vets

Here, vets David McCrea and Brian Mundell of Capontree Vets illustrate how two of their suckler farming clients are utilising these breeding technologies in different ways, for different reasons.

"Heat synchronisation programmes are often used on heifers in block-calving dairy herds," explains David. "Plus they can also be used to improve efficiencies in suckler herds, especially where calving blocks have become extended.

"In suckler herds, the main aim is to reduce the length of the calving period and ensure that valuable cows have a calf every year, and that they don't miss a year or get culled because they weren't pregnant by the end of the breeding period.

"Once synchronised females come into heat, they can either be run with the bull or AI-ed.

"AI has the drawback that it involves an extra handling of the cow, but there are many benefits to be had. For example, it gives access to a greater pool of genetics and farmers can select for proven easy-calving bulls. AI has a cost, but it can be cheaper than keeping a bull for a whole year; plus one less bull on a farm is one less safety risk."

Tighter calving block

At Todhillwood Farm near Haltwhistle, Tony Wigham runs a herd of 55 spring-calving cow – mainly Limousin and Belgian Blue crosses, plus a flock of 600 Swaledale ewes.

Tony Wigham

Tony explains: "Lambing starts mid-April and I want to have most of my herd calved before then.

"Partway through the 2017 breeding season, one of our two bulls became infertile. We started to see cows coming back into heat again. By the time we had remedied this, we ended up with a calving period that spread from March into August."

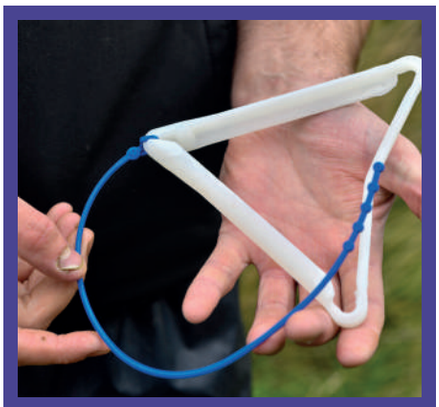
Brian explains: "The challenge we have in bringing very late calvers back into the calving block is that the suckling effect of a calf delays its dam's return to cycling. Typically, the first heat is as late as 100 days after calving.

"However, in heat synchronisation programmes, a progesterone-releasing device can be used to override the suckling effect making cows come into heat sooner and be ready for breeding again. Synchronisation can bring the first heat forward to 45 days post-calving, so even if a second service is needed, it still advances the calving date."

Heat synchronisation

In the breeding season of 2017, Brian had carried out a synchronisation programme for Tony, but it required cattle to be handled five times in order to synchronise and AI them. This had been difficult both due to time and for practical reasons, and had put Tony off doing it again in this way.

However, in 2018, a new programme became available in which synchronisation and AI could take place using only three handlings.



This progesterone-releasing device overrides the suckling effect and brings forward the cow's first heat

Brian explains: "The plan was to synchronise the late calvers and bring them to the front of the block so that calving could be finished before Tony got really busy."

In June last year, 21 cows which had calved in the second half or tail end of the calving block were selected for synchronisation and AI. Importantly, they needed to have calved at least 30 days prior to the start of the programme to give the uterus time to recover from the previous pregnancy, ready for conception to take place again.

At the first handling, Day 1, the body condition scores were checked by Brian. Each cow was also examined to ensure its uterus was healthy. It was then ultrasound-scanned to check for the presence of a corpus luteum on an ovary, thus indicating it was cycling. An intra-vaginal progesterone-releasing device was then inserted.

These devices were removed at the second handling, Day 7, and cows received a further treatment from Brian to bring them into heat three days later. Cows were AI-ed 60-66 hours after removal of the device, while for heifers the optimum time is 56-60 hours afterwards, as they release their eggs quicker than a mature cow.

Tony explains: "I chose semen from several different bulls, selecting for ease of calving and good conformation. With AI, I can use a better bull and increase the quality of my calves."

Tony employs the services of a local self-employed AI technician for all inseminations. He explains: "He's been coming to the farm for years. I ring him up and he tells me when he can come. If I've just got a couple of cows to be done, then I put them in the shed for him. There's a good race, and I don't need to hang around to be there. It's simple and it works for me."

Of the 21 animals AI-ed, 17 held to first service, 2 conceived on the second AI service and those still empty were run with the bull.

Brian adds: "We do see some variation in conception using this type of system, depending on the body condition and nutritional status of the cows. But on average, we would expect to achieve conception rates of around 60%.

"So we were exceptionally pleased with Tony's results as they are at the upper end of the scale."

2019 calving

Tony says: "This year, calving started on the 20th March, and within two months 50 animals had calved. All calving had finished by the end of June."

Calves that are more uniform in age will be more easily managed, reared and sold

Tony had initially been concerned that synchronisation would result in an overly busy few days around the calving date. He did indeed have 5 cows calving on one day, but the rest took place over a 10-day period.

Brian explains: "So this year, most of Tony's herd had calved by mid-May. This gave them a month to recover and start cycling again before going back to the bull to get in-calf naturally.

"Using synchronisation and AI, it has taken Tony just two years to bring his late calvers back in line and enjoy the benefits of a more compact calving period, allowing him to turn his focus to his lambing.

"Additionally, calves born over a shorter period of time and so of similar ages, will be easier to rear, and ultimately will make up more even batches of stores for selling at Hexham market."

Tony plans to use a synchronisation programme every few years if needed, to bring any late calvers back into line.

It has taken Tony just two years to bring late calvers back in line using heat synchronisation and AI

Heifer management

For several years now, vet David McCrea has routinely been synchronising autumn calving heifers to aid their management for John Wigham who farms with his father Richard, and brother Steven, at Hargill House near Haltwhistle.

The 200-cow suckler herd is made up of Limousin and Belgian Blue crosses, and pedigree Limousins. The herd calves through most of the year – starting early February and continuing into December, with a peak of calvings in the spring, and again in the autumn.

John Wigham

John explains: "We'll have around 40 heifers each year. Those to calve in the spring are summered away from the farm so they are run with a bull and served naturally. We use a home bred Limousin, sired by a bull which is noted for its easy calving, as we want to minimise assisted calvings.

"However, we want the autumn-calving heifers to calve over a short period of time so we can batch them up and run them as a separate mob from the rest of the herd. So David will synchronise them, and I'll AI them, and then they all calve down within about 12 days of each other."

He adds: "Our heifers need to be bred to an easy-calving bull. Some will be kept as replacements, so using AI means we can introduce different bloodlines into the herd and we also hope to breed some pedigree bulls."

John Wigham likes the convenience of carrying out his own AI

DIY AI

John has been carrying out his own AI on the herd for several years now, after attending a FarmSkills DIY AI course run by Capontree Vets.

John explains: "I like the convenience of doing the inseminations myself, I don't have to organise anyone else, or wait around for a technician to arrive."

John will also AI 20-30 cows towards the end of each year. "I'll AI them with Limousin semen – mainly purchased from a semen company, but some sourced privately. Bulls with a short gestation and high growth rates are the priority."

As they are all inside, it is easy for John to watch for their heats and then pull them out for AI. Any not seen bulling by December will be put onto a synchronisation programme by David.

"We already keep 5 bulls, and if I didn't use AI, then I'd need another one," explains John. "Bulls are expensive to buy, can take time to acclimatise on a farm, and then you can't guarantee they'll stay fit. They do, however, do all the heat detection for you, whereas with AI, you must put the time in yourself."

David adds: "The results we are getting from the synchronisation programme followed by John's AI, are an average 65% cows pregnant and 84% heifers pregnant to 1st service. This is comparable to natural service although variations are seen year on year."

DIY AI courses

A number of XLVets practices regularly run FarmSkills DIY AI courses, which last between 3 and 4 days. These include theory and hands-on practical workshops in small groups. A list of some of the courses running can be found on the facing page, but for the most up-to-date list of options, visit www.farmskills.co.uk.

For beef farmers and students in England, there is AHDB funding available giving 50% off the cost of a course. Courses must be booked by March 2020. Further details on the terms and conditions of the funding can be found on the FarmSkills website, or by calling 01228 711788.

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workshops in the **North**

4th October	**Beef Nutrition**	Bishopton Veterinary Group, North Yorkshire
7th October	**Practical Calving**	Bishopton Veterinary Group, North Yorkshire
15th October	**DIY AI (4 day Course)**	Capontree Veterinary Centre, Cumbria
17th October	**2 day Foundation Foot Trimming**	Bishopton Veterinary Group, North Yorkshire
23rd October	**Sheep Smallholders**	Bishopton Veterinary Group, North Yorkshire
28th October	**DIY AI**	Bishopton Veterinary Group, North Yorkshire
5th November	**Sheep Nutrition**	Bishopton Veterinary Group, North Yorkshire
11th November	**Mastering Medicines**	Bishopton Veterinary Group, North Yorkshire
13th November	**DIY AI**	Bishopton Veterinary Group, North Yorkshire
13th November	**Foot Trimming and Mobility Scoring**	Capontree Veterinary Centre, Cumbria
27th November	**Mastering Medicines**	Capontree Veterinary Centre, Cumbria
4th December	**Foot Trimming and Mobility Scoring**	Capontree Veterinary Centre, Cumbria
6th December	**Mastering Medicines (Dairy Specialist)**	Bishopton Veterinary Group, North Yorkshire
13th December	**Intermediate Foot Trimming and Lameness**	Bishopton Veterinary Group, North Yorkshire
16th December	**DIY AI**	Bishopton Veterinary Group, North Yorkshire

workshops in the **South**

7th October	**Mastering Medicines (Beef and Sheep)**	Cliffe Veterinary Group Ltd, East Sussex
7th October	**Dairy Herdsman Certificate**	Shepton Veterinary Group, Somerset
8th October	**Sheep Lameness**	Synergy Farm Health, Dorset
9th October	**Liver Fluke Control**	Larkmead Veterinary Group, Oxfordshire
9th October	**Mastering Medicines**	Larkmead Veterinary Group, Oxfordshire
9th October	**ROMS registered Mobility Scoring**	Synergy Farm Health, Dorset
14th October	**2 Day Foot Trimming**	Synergy Farm Health, Dorset
16th October	**Mastering Medicines**	Drove Veterinary Hospital, Wiltshire
23rd October	**Practical Calving**	Hook Norton Veterinary Group, Oxfordshire
23rd October	**DIY AI**	Shropshire Farm Vets, Shropshire

For more information on our workshops please call **01228 711788**,
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