

Best practice: project reveals the results of putting calf-rearing protocols in place. [Page 26](#)

Weaning pointers: the latest guidelines on maximising growth rates. [Page 28](#)

What's new? The latest products and services available to aid calf rearing. [Page 30](#)



Following calf-rearing protocols reaps rewards

'Blueprint' for best practice

Adopting a labour-saving system has freed up time to focus on calf health – and measure, monitor and maximise growth rates – on one 500-cow unit. And this approach has dramatically reduced heifer age at first calving.

text **Rachael Porter**

A high calf mortality rate was just one of the catalysts that has seen one West Sussex-based herd working more closely with its vet, for the past eight years, in a bid to radically improve calf and heifer performance. Herd manager Steven Barbour says that it all began when they reviewed the business in 2007, with a view to cutting costs and improving efficiency. "I'd recently joined the business and, as well as struggling to get more than 85% of each year's first-lactation heifers back in calf, we were also seeing heifers calving at 28 months old. This was fraught with its own problems, as well as being inefficient."

With help from specialist cattle vet Rob Drysdale, as well as a diligent and dedicated team of farm staff including his wife Miranda, Steven set about improving calf-survival rate, and calf health, and reducing young stock rearing costs and age at

Rob Drysdale: "Retention to third calving is now more than 70%"



first calving. "Key to this was rearing heifers that were big enough to calve down at 24 months old, and milk, breed and stay in the herd," says vet Rob. His approach was based on work he'd seen in Canada and the US that uses student teaching, plus intern training, to keep the vet and monitoring costs down at £10 per cow, including heifer PDs.

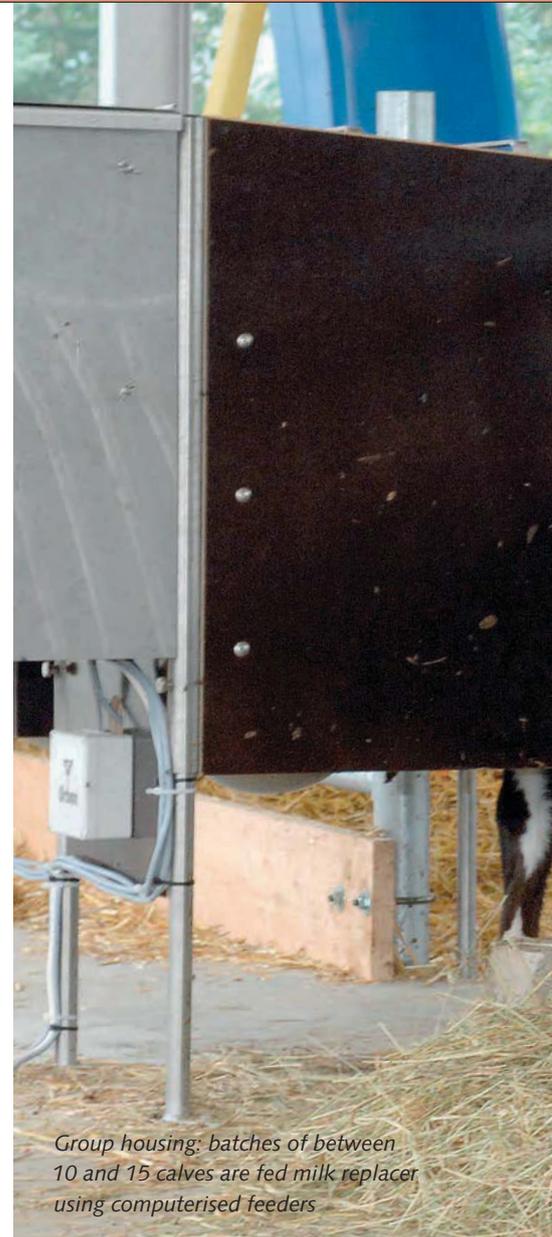
'Rushed' rearing

By his own admission, Steven says that calf management required attention. "Labour was tight and calf rearing was 'rushed'. There were no protocols or plans in place. Heifer rearing was definitely something that we were overlooking – and to the detriment of the whole herd."

It was very much a case of 'back to basics', with a greater focus on feeding quality colostrum to newborn calves – in the recommended quantity and as soon as possible after birth. "And, due to the labour issues, we carefully weighed up the benefits of investing in an automated calf milk feeding machine. The figures stacked up and we quickly saw a return on our investment," says Steven. "It worked so well for us that we decided to invest in a second machine a couple of years ago."

The biggest difference is the unit's 'all-in-all-out' batch rearing system. "This really is the best way to prevent and tackle disease. Hygiene is vital and cleaning out calf housing thoroughly between batched means that a sick calf is a rare thing on our unit."

NMR records, and farm and vet practice data, show that, during the past eight



Group housing: batches of between 10 and 15 calves are fed milk replacer using computerised feeders

years, herd size has increased from 440 to 500 cows using home-bred replacements stock and yields are averaging 10,500 litres of milk sold per cow per year on twice-a-day milking – up from 9,000 litres. The herd has also moved to being 'BVD free'.

Improved performance

More importantly for Steven, heifer mortality is now less than 5% from birth to calving, including culls. In 2007 this was closer to 10%. Average age at first calving has been below 24 months since 2013 – saving four months of rearing costs on 130 or more heifers each year. More than 90% calve at between 22 and 23 months, at more than 90% of mature cow weight.

"Retention to third calving, when I feel a home-reared heifer starts to contribute to farm profit, is now more than 70%. Calving interval sits between 370 and



380 days. The pregnancy rate now averages 25% and 30%, depending on the season,” says Rob.

“And maintaining these targets is much easier now we have a calf rearing ‘blueprint’ to follow, that suits our set up. We tweak this every now and again as there’s always room for improvement,” says Steven. He and Rob agree that continuous monitoring, by weekly vet intern visits and quarterly reviews by Rob with the farm team, including nutritionist Warwick Bastard, have been vital in their success so far and will be essential to maintain future performance and progress.

Growth targets

“We use a mixture of measures, including growth curves and wither height, to monitor heifers,” says Rob.

After colostrum feeding – a minimum of six litres in the first 10 hours after birth

– calves are grouped in hutches of between three and five calves for between five and 10 days, for the transition from colostrum to milk replacer. They are then moved to the calf shed, into groups of between 10 and 15, and fed by computerised automatic feeders.

“We’re looking for a growth rate of 850g per day, on average,” says Steven. “Smaller calves will average a daily liveweight gain of 700g and larger calves up to 1kg and this takes into account a slight growth check at weaning.”

Calves are fed a maximum of 1.8kg of Volac’s Heiferlac milk replacer through the automatic feeder: “Basically this is ad-lib feeding for smaller calves and restricted for larger ones. And calves will be milk-fed like this for between 60 and 70 days.”

The machine allows for gradual weaning over a 12-day period, and creep feed and water consumption increases to sustain

growth rates and minimise, or prevent, any check.

“The milk-feeding machines have been a revelation and have freed up labour to focus on the detail,” he says, adding that there’s also a rigorous vaccination programme in place to protect against pneumonia.

“We’re finding that once we’re happy with one particularly aspect of calf rearing and management, and begin to see the rewards for our efforts, we then discover the next limiting factor.”

Sub-clinical pneumonia in the post-weaning phase has been identified as the next ‘bottle neck’ and Steven is looking to improve ventilation in the calf house.

“Working like this is rewarding – and not only in terms of calf health, welfare and productivity. The improvements we’ve seen in our young stock is also great for staff morale. There’s satisfaction to be gained from a job well done.” |

Calf weaning – what's best practice?

Focus on weight – not calf age

We spoke to two leading calf specialists for the most up-to-date advice on calf weaning, in terms of weight and feed intake, to help ensure that producers avoid checks in growth and hit the magical target of 24-month calving.

text **Rachael Porter**

Advice was that calves should be weaned at five weeks old but, as one CowManagement reader recently pointed out, many calves are now weaned at closer to three months of age. So what's 'best practice' and how can producers maximise calf health and growth rate to meet performance targets?

Historically, many producers weaned calves by age – and many still do, according to Volac's calf specialist Jessica Cooke. "But management and systems have changed. Producers are feeding calves more milk to higher weights and so when calves are weaned should reflect that, in order to avoid significant growth checks and possible health problems."

Birth weight

"The advice was to aim to double the calf's birth weight by 60 days of age," says Cargill's calf and heifer specialist Bianca Theeruth. This represents daily live weight gain of between 750g and 800g in order to be big enough and mature enough to achieve calving at 24 months old. But the problem with this method is that doubling

Table 1: Target body weight and height at maturity

	mature body wt (kg)	mature body height (cm)
Holstein	680	145
Jersey	454	120
Ayrshire	544	130

Based on breed standard information/indicators and may vary from unit to unit

birth weight at 60 days of age is not the same as doubling birth weight at 56 days of age – different growth rates are required.

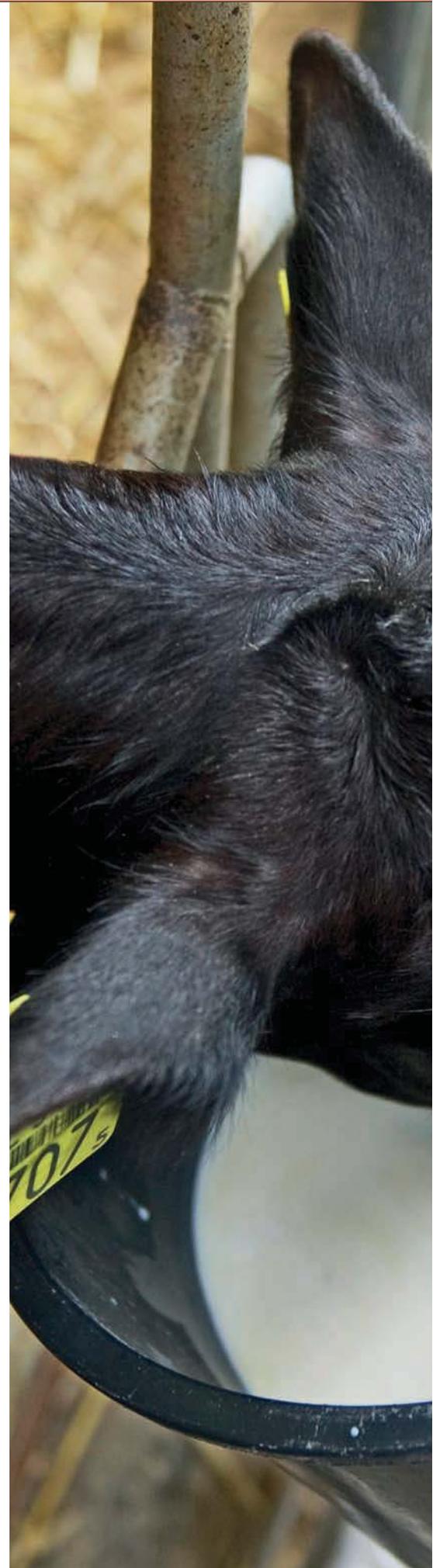
For example, for a 42-kilogramme calf to double its birth weight by 60 days (to 84kg) needs to achieve an average daily live weight gain of 700g per day. And for a 42-kilogramme calf to double its birth weight at 56 days needs to grow at average daily rate of 750g/day. If the heifer calf has only doubled its birth weight in 12 weeks (from 42kg to 84kg LW), its average daily gain is only 500g per day which means that we have missed the target growth rate in the pre-weaning period.

Miss Theeruth says that producers should, instead, focus on a 90-day target and says that all calves – regardless of breed and birth size – should be at least 15% of their expected mature body weight at this age. Based on the figures in Table 1, this works out at 100kg LW for a typical Holstein calf. The reason for looking at 90 days versus the weaning

Table 2: Calf starter feed intake milestones

age (days)	milestones – calf starter intake (g/day)*
7	0.025
14	0.125
21	0.250
28	0.500
35	0.750
42	1.200
49	1.500
56	2.000

*Quigley, J. D., et al. 1997. University of Tennessee, unpublished data





Bianca Theeruth: "Focus on a 90-day target, when calves should ideally be 15% of their mature body weight"



Jessica Cooke: "Offering clean and fresh forage is key to stimulating starter intakes and rumen development"

period is that any post-weaning checks in growth will have an impact on achieving the target growth rate. It is not efficient to lose pre-weaning, gain post-weaning. So the 90-day target looks at the pre-weaning and post-weaning period as a whole. Growth targets can easily be applied to any breed. At birth, calves are typically 6.25% of mature body weight. At 56 days of age they should be around 13% of their mature body weight and at 90 days of age the target is 15% of mature body weight.

"We advise producers to weigh a proportion of their herd, ideally 10% of third-lactation cows, to get an idea of their herd's average mature body weight, because there could be variation from herd to herd compared to the breed standard."

Starter intake

As well as assessing size and weight, calves should also be weaned according to their feed intake, not least to ensure that they continue to meet growth targets and avoid a check (see Table 2). "They should be consuming between 1.5kg and 2kg of starter feed for three consecutive days by the time they're eight or nine weeks old. That's a good indicator that they're ready to be weaned," says Miss Theeruth. She adds that some producers would say that level of intake is difficult to achieve: "But if there is good quality starter and clean water available to the calf, this is achievable by the time the calf is two months old. By five weeks old, calves should be consuming 1kg of starter feed per day."

The trick is to introduce dry feed immediately after the colostrum phase and water should be offered from birth. The two go hand in hand: "And make sure the starter feed is fresh, interesting and appetising. Calves are naturally

inquisitive, so make the most of that." The gold standard is to have calves eating 100g of starter a day by the time they are seven days old, but that can be challenging to achieve under commercial conditions. "Most seven-day old calves will consume just a quarter of that. So there's work to be done here to increase intakes and get growth rates on track."

Little and often is the key: "Make sure that the feed you put in front of them is fresh – don't put a full bucket of feed in the pen and then leave it there for several weeks. It will be stale. And fresh and clean water should also be provided on a daily basis."

Forage 'stimulation'

Dr Cooke agrees, adding that providing forage is also key to stimulating starter intakes. "Research has shown that calves will consume more concentrates when they're also offered chopped straw or hay. And this fibrous material also has a role to play in stimulating rumen development.

"Straw or hay should be provided in racks or a trough, rather than being placed on the floor, as this will ensure that it's clean and dry and will stimulate intakes."

Another recent piece of interesting research has also shown that pairing or grouping calves, ideally before three weeks of age, also served to stimulate feed intakes. "Calves are often penned and milk-fed individually from birth, but there are benefits, as far as starter and forage intakes are concerned, of housing them together or in small groups after a few days and certainly by the time they are three weeks old.

"They learn feeding behaviour from each other and work has shown that feed intakes are significantly higher in young calves that are housed in pairs or groups." |

We take a look at some of the latest calf-rearing products and advice

What's new in calf rearing?

A round up a few of the latest products and information that should help to keep your calves in good health – and growing well – this autumn and coming winter.

text **Rachael Porter**

① Nutritional supplements for calves

Two products, designed to support calves that have or are recovering from digestive upset, have been launched by Virbac.

Enerlyte Plus is a nutritional supplement that contains electrolytes, for the maintenance of hydration and lactose, together with glycine for nutritional and energy support. It also includes powerful antioxidants, selenium and Vitamin E, to help protect gut cells and Enterococcus faecium (Cylactin), which is a probiotic protected by Capsibac Technology and helps to stabilise gut flora.

Available in an easy-to-prepare effervescent formulation, Enerlyte Plus' vanilla flavour makes it highly palatable. It can be fed to calves, two or three times a day, for between two and seven days.

Diaproof Pro contains a range of ingredients, including electrolytes, glucose, Vitamin E, Vitamin B3 (brewer' yeast), and Psyllium, which is a plant-based fibre that forms a gel when mixed with water and helps maintain normal intestinal transit. This product's feeding regime

comprises three complete sachets – one should be fed every 12 hours.

For both products, the company recommends that additional milk feed should be given at separate times to increase the overall fluid intake in the affected calves.

② Feed colostrum with ease

Dairy Spares has launched a unique colostrum-feeding kit, called the Trusti Tuber. Its design ensures that tubing is safer, easier and more comfortable for the calf. It allows feeding to be carried out quickly and with less stress for both calf and producer.

Manufactured by Antahi in New Zealand, the Trusti Tuber starter kit consists of a mouthpiece that sits comfortably against the calf's muzzle, and a soft flexible tube, which is passed through this. Using markers of calf size and a stopper, the length of the tube can be altered to ensure correct placement and positioning of the tip end.

The mouthpiece and tube are easily held in the calf's mouth using one hand. With the other hand, the four-litre ergonomically-designed milk bottle can be raised to allow the colostrum, or electrolytes, to flow down the tube and

safely into the calf's stomach. Further design features include a clip on the side of the bottle to attach the mouthpiece and keep it off the floor.

The kit costs £55 + VAT and includes the flexible tube, mouthpiece, four-litre bottle, and a conventional feeding teat for the bottle.

➔ A video showing the Trusti Tuber in action can be found at: www.dairyspares.com.

③ Give calf jackets a hot wash!

Producers are being reminded to disinfect calf jackets and put them through a hot wash, between calves, to prevent the spread of cryptosporidiosis.

This disease is caused by parasites and can cause watery, yellow scours. Good hygiene practices are essential, because it can be spread in the environment, through other calves and from cows.

"Calf jackets can potentially harbour cryptosporidium eggs," said AHDB Dairy's Andy Dodd. "These can only be destroyed if the jackets are disinfected with a licensed cryptosporidium disinfectant and then washed at 60°C. The eggs are only destroyed at temperatures at or above 60°C. It is important to allow the jackets to dry completely before re-using them," he added.

