

Learning from your cousins – part 3

THE main focus of my two previous articles on the two-day pre-conference seminar at the annual conference of the American Association of Bovine Practitioners, on "The replacement heifer from birth to calving", has been the pre-ruminant calf. Now we switch to post-weaning and reproduction in the heifer.

Management of the dairy heifer from weaning to calving is a hugely neglected area

— how many vets in the UK have regular input into this on their clients' farms? I know I don't.

Rob Corbett discussed this key area and ways to maximise growth at this stage.

Once the calf is weaned it should stay in its hutch (or UK equivalent) for a week to monitor starter intake. Ensure the calf eats 3-4kg of starter daily, if it drops below 1kg then it should be placed back on milk. The calf should then be moved into a small group, still on starter for a week. A grower ration can then be introduced; preferably 20% alfalfa hay and 80% concentrate.

If alfalfa hay is not available, then discussion with the nutritionist about an alternative is advised, but fermented forages should be avoided. Calves can stay on a grower ration until five months.

Adjust the ration

As the heifer matures, her ration has to be adjusted according to her requirements. In the UK, like many dairy farms in the USA, grouping of heifers is extremely difficult, with a wide age range making ration formulation difficult. The aim must be to meet the nutrient requirements of the youngest animal to get maximum growth rates whilst monitoring older animals in the group to make sure they don't become over-conditioned. The most common cause of interfering with growth rates and increasing disease incidence is low protein diets.

Ultimately, discussion with the nutritionist, use of highest quality concentrates and use of available forages on farm must be brought together to maximise growth and health.

Mike Overton discussed the opportunities and challenges in dairy replacement heifer reproductive programmes. The focus so far had been getting our heifer to this point but if there is no focus on then getting

in first lactation and 450kg in second lactation.

Critical

Early heifer growth and development along with efficient reproductive management are critical for reaching this goal. Without proper early development, breeding can't begin early, and without good heifer reproduction then there is a failure to capture the full benefit of intensive rearing.

Figure 1 shows the life-cycle of a heifer from birth to calving. The "breeding" window varies significantly on farms in both the USA and UK. The use of AI and not natural service in heifers was encouraged. It was emphasised what a great tool it is to improve genetic progress and reduce dystocia.

Conception rate or "risk", as Mike Overton called it, is influenced by several factors: oestrus detection accuracy, technician, sire, animal — including age and breed, days since last insemination at PD, semen — conventional v. sexed, and season (e.g. heat stress).

In basic AI programmes oestrus detection (insemination rate) is often the largest bottleneck to improving reproductive efficiency. Figure 2 shows synchronisation in heifers whilst Figure 3 is a suggested timed AI programme in heifers.

The five-day CIDR Cosynch-72 has been developed to deal with the issues of OvSynch in heifers. These are that heifers have a faster rate of follicular growth than cows, they are more likely to have three (or even four) wave follicular cycles, they are less likely to ovulate a dominant follicle in response to the first GnRH, and they are at risk of premature regression of the CL and expression of oestrus compared with cows.

There are some adjustments to the five-day CIDR Cosynch-72 programme that achieve comparable conception rates; quoted at around 50% pregnant at day 32, with 80% non-pregnant found in

Life Cycle (Birth to Calving) of a Heifer

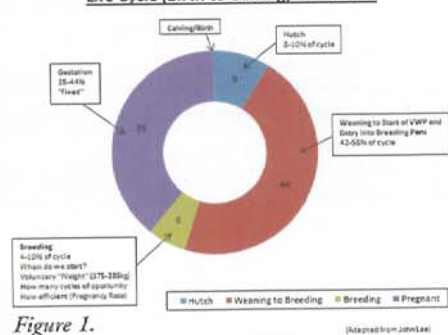


Figure 1.

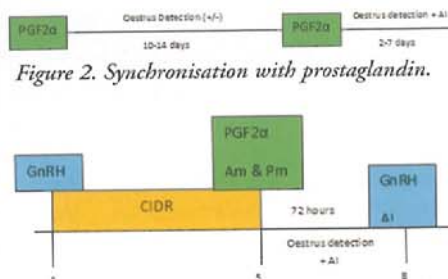


Figure 2. Synchronisation with prostaglandin.

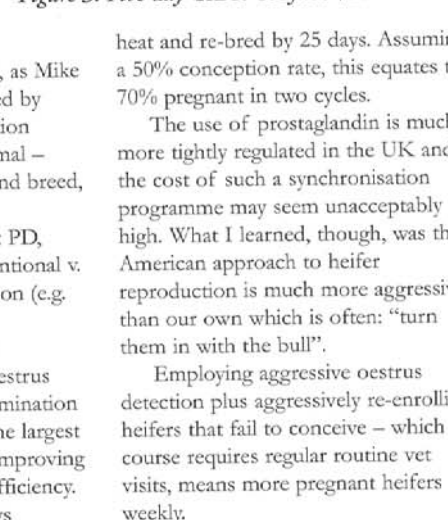


Figure 3. Five-day CIDR CoSynch-72.

heat and re-bred by 25 days. Assuming a 50% conception rate, this equates to 70% pregnant in two cycles.

The use of prostaglandin is much more tightly regulated in the UK and the cost of such a synchronisation programme may seem unacceptably high. What I learned, though, was the American approach to heifer reproduction is much more aggressive than our own which is often: "turn them in with the bull".

Employing aggressive oestrus detection plus aggressively re-enrolling heifers that fail to conceive — which of course requires regular routine vet visits, means more pregnant heifers weekly.

Heifer reproductive performance is a larger economic opportunity than many realise and is a key part to getting the full benefit of intensive heifer rearing programmes.

Acknowledgements

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The 2014 AABP conference

The 47th Annual Conference of the American Association of Bovine Practitioners is to be held in the Albuquerque Convention Center, Albuquerque, New Mexico, from 18th to 20th September, 2014. The American Association of Small Ruminant Practitioners will participate in the event and will provide additional programmes.

OLIVER TILLING

presents the third of his reports of a visit to the conference of the American Association of Bovine Practitioners with a further account from the seminar on replacement heifers



her in calf, we have wasted a lot of effort.

There are two big drivers for achieving an earlier age at first calving:

1. Improved nutritional management
 - efficiency and increased rate of gain;
 - achievement of puberty and adequate frame at an earlier age with less disease and less variation.
2. Efficient reproductive management
 - less variation around time of first service;
 - improved pregnancy rates once breeding starts;
 - reduced reproductive culls;
 - an established limited period of breeding.

Table 1 shows the commonly promoted "goals" for Holstein heifers in the USA. The average age at first calving in the USA is 25 months. The major factors driving this are: age at puberty; growth patterns; management factors such as voluntary waiting periods, pen management and pregnancy diagnosis; conception risk; oestrus detection and breeding management — synchronisation, timed AI or natural service.

The opportunities for earlier heifer rearing are reduced morbidity and mortality, an earlier potential age at first service and first calving and enhanced milk production in future lactations — research suggesting 800kg

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Table 1. Commonly promoted "goals" for Holstein heifers in the USA.

- Reach puberty 9-10 months
- Start breeding 13-14 months
- 375-385kg (55-60% mature bodyweight)
- 120cm withers height
- Use superior AI bulls known to produce few difficult births
- Oestrus synchronisation procedures as needed to improve reproductive efficiency
- Calve 22-24 months
- Weigh 550-600kg prior to calving (520-590kg afterwards)
- Average daily gain 0.75-0.90kg over entire rearing period

Table 1.

Oliver Tilling, BVSc, BSc, MRCVS, went to Liverpool University to study zoology in 1998, completed a BSc in 2001 and went on to study veterinary science, qualifying in 2006. After four years in mixed practice in Skipton, North Yorkshire, he joined Shepton Veterinary Group in 2010, where his particular interests are in youngstock and fertility work.