

Artificial insemination

Make it work for your farm

Synchronisation and planning can help beef producers incorporate artificial insemination into breeding programmes, reports **Aly Balsom**

Arificial insemination is a significant tool for beef producers looking to boost genetic gain and performance, yet the practicalities of how to do it often put farmers off.

However, the development of synchronisation programmes means it is possible to minimise time needed for heat detection and maximise conception rates. Even those not using these programmes can still make AI work for them by thinking about how they do things on farm.

HOW SHOULD I USE AI?

The first thing to ask yourself is what you are trying to achieve. One of the main benefits of AI is the ability to access high-genetic merit sires to drive herd improvements.

How AI is used will vary from farm to farm depending on breeding goals, but could be used on

individuals or groups of animals.

For example, you could use one AI bull for producing calves with superior carcass traits and one to improve maternal traits in replacements.

The key is to use EBVs to select bulls that will produce progeny to fit requirements and complement the females to which they are born.

FARM SET-UP

Before doing anything, farmers should assess their system to see what needs to be done to implement AI on farm, advises Eblex senior beef and sheep scientist Mary Vickers.

"Speak to your vet and approach AI companies to discuss what they need and how your farm could fit in their round," she says.

Dr Vickers advises looking at the following:

- * Handling facilities – good facilities are crucial. Cattle need to be

moved calmly as any stress will affect conception rates.

- * Groupings – can you keep cattle due for service close to the handling system?

- * Cow health – animals should be healthy, on a rising plane of nutrition and in good body condition, otherwise conception rates will suffer and AI could become costly

- * Records – do you have good records of cow health and fertility so you can serve appropriate animals?

- * Labour – do you have time to observe and record heats? This affects which programme you use.

WHAT AI OPTIONS ARE AVAILABLE?

Observing heats

If done well, AI based on visual observations of heat is the best way to maximise conception rates as you can time insemination more accurately. However, time required to observe can make it impractical.

The main benefit of AI is that it allows farmers to access high-genetic merit sires to drive herd improvement.

Ideally cattle should be observed twice a day for 20 minutes in the morning and evening. Animals should be inseminated 12 hours after they are first seen standing to be mounted.

Using aids such as Kamars or automated heat detection systems can help detection.

Synchronisation

Synchronised breeding strategies use hormones to bring cows into heat in a set period. This strategy can help:

- * Facilitate block serving and a compact calving period
- * Reduce time and labour needed for constant heat detection
- * Improve the timing of AI.

Many beef farmers will synchronise heifers to get them to calve at the start of the calving season.

Producers will still need to determine a heat detection strategy for serving animals returning to heat after any synchronisation programme has finished, unless a sweeper bull is being used.

Vet Keith Cutler of the Endell Veterinary Group says details of synchronisation programmes can vary and must be designed in dis-



cussion with a vet.

"However, all synchronisation protocols are variations of two themes and stem around the use of two hormones; prostaglandin and progesterone," he explains.

In a cow's natural cycle, a structure called the corpus luteum is produced after ovulation which secretes progesterone. Progesterone prevents another egg from being produced or a cow from coming

into heat.

Prostaglandin is naturally produced near the end of a cow's cycle if she is not pregnant to cause the corpus luteum to regress. As a result progesterone levels decline, result-

CASE STUDY

'Handle cattle quietly for better conception'

- * Planning ahead and ensuring cattle are on a rising plane of nutrition has helped Will Dickson achieve 92% conception rates in his first year of using synchronised AI on maiden heifers.

Having decided that AI was the best way to drive genetic gain in his herd of predominantly Aberdeen Angus-sired suckler cows, Mr Dickson turned to vet Keith Cutler of the Endell Veterinary Group for advice.

They decided on a progesterone-based synchronisation programme to help calve maiden heifers two weeks before the main herd of spring calving cows.

Mr Dickson started to plan well in advance to ensure heifers were in the right condition and an AI technician was booked in to serve at exactly the right times.

"I specifically kept some grass fields near the buildings for the

heifers as they were ideal to ensure heifers were on a rising plane of nutrition prior to service," says Mr Dickson from Wick Farm, Downton, Salisbury.

An existing handling systems from when the farm was a dairy also meant Mr Dickson was confident heifers could be handled calmly.

"Minimising stress was a main focus because if you can handle cattle quietly, it's better for conception," he says.

Bulling heifers were selected in January/February. This group was then given preferential treatment and kept in a specific smaller group and fed more silage during housing. They then went out to good-quality grazing leys at the end of February and were put on the fields close to the buildings prior to insemination in April.

Mr Cutler explains how a progesterone device was implanted

for 12 days with a prostaglandin injection given on day 11.

"Giving the prostaglandin injection allowed me to check that all the devices were still in, which they



Timing is critical, says Keith Cutler.

ing in a hormonal response causing the cow to start cycling again and come into oestrus.

All synchronisation programmes are designed to adjust this cycle:

- * Prostaglandin-based programmes generally give two doses of prostaglandin (PG) 11 days apart. PG causes the corpus luteum to regress and the animal to come into heat. Fixed-time AI (FTAI) then takes place at set times, once or twice after the last PG injection (see example).

- * Progesterone-based programmes are based on using a progesterone releasing device (either a PRID or CIDR) which is inserted into the vagina. This device acts like a corpus luteum. By pulling it out after eight days it induces a hormonal response resulting in



Cattle need to be calm when being artificially inseminated, as stress will adversely affect conception rates.