Study Highlights Financial Gains and Benefits of Adopting AI in Beef Herds

A joint LHS/Zoetis funded study has found beef farmers could yield a return on investment of over £120 a cow by using artificial insemination (AI) instead of natural service due to increased pregnancy rates, calf weights and reduced mortality.

Livestock Health Scotland and animal health company Zoetis looked at the value of using AI and synchronising breeding using CIDRS on three spring-calving beef herds in Caithness, the Borders and Dumfriesshire.

Over 300 animals were bred between June and late July 2021 by synchronisation and timed AI followed by a sweeper bull, or by using a normal stock bull alone as control group.

The results found:

- Conception rate to AI averaged 59% and overall pregnancy rates were superior in the AI group across all three farms, ranging from 94% to 100% compared to 82-97% in the natural service group.

- Assisted calving and calf mortality were higher in the natural service group, with calf mortality from birth to weaning ranging from 5-10%, with only one herd reporting mortality in the AI group at 2%.

- On average 78% of cows calved in the first three weeks when bred to AI, compared to only 44% in the control groups.

- Calves born to AI groups were, on average, 24.5kgs heavier than calves born to the control groups.

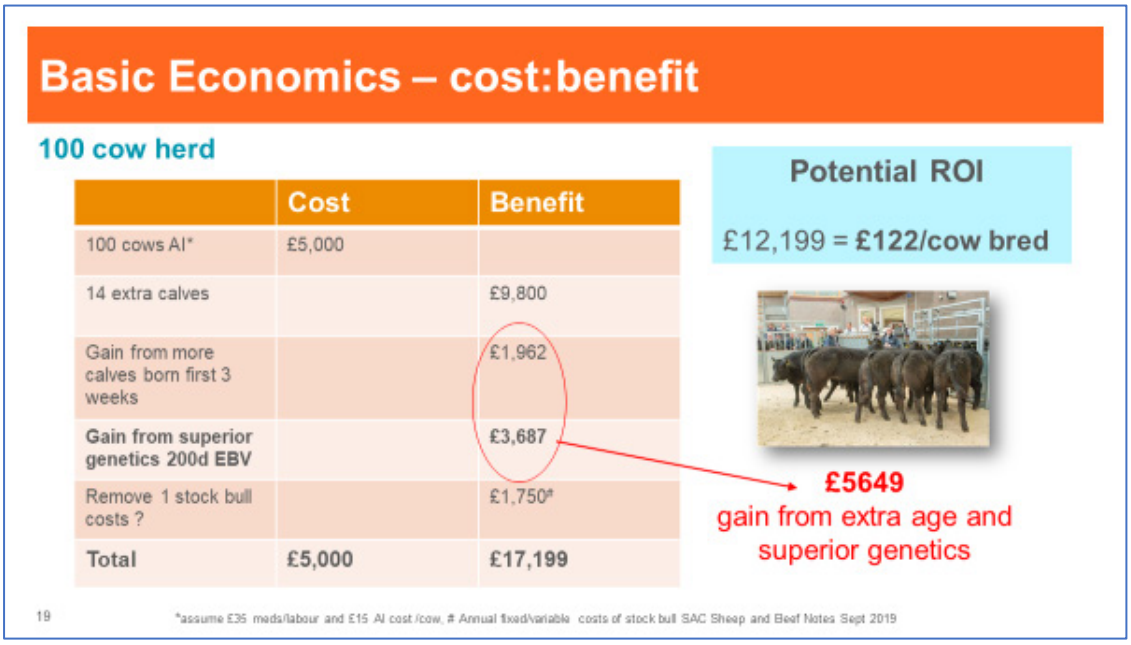
	Barren Rate	Assisted Calvings	Calf Mortality	Calved in 1st 3 weeks	Weaned calf crop 2022	Weaned calf weight*
AI groups	4%	2%	0.7%	78%	96%	305kg
Control	11%	10%	7%	44%	82%	280kg
AI System Advantage	**-7%**	**-8%**	**-6%**	**+34%**	**+14%**	**+25kg**

Summary KPI results from AI group (AI then sweeper bull) and control group (bulls alone)

Commenting on the results, Veterinary Consultant Colin Penny from Zoetis said: “Breeding using AI is vastly underutilised in the beef herd, yet the economic gains, as this study showed, can be quite significant.

“AI not only allows you to breed using superior genetics by accessing animals with the best estimated breeding values (EBVs), those animals born earlier are also finishing quicker due to their genetics and extra days growth.

“We’ve also seen higher pregnancy rates and lower mortality in the AI group, resulting in 14 more weaned calves per 100 cows mated across the three herds. When calculating all the costs of AI and also removing the need for one extra stock bull plus the benefits from AI, we estimated the ROI to be £122 per cow bred,” he added.



Donald Henderson, Dunn Farm, Wick, Caithness, was one of the farmers involved in the study. He had previously AI'd some of his heifers using an easy calving bull and to tighten the calving block.

Involvement in this trial further emphasised the benefits. Mr Henderson continues to use it to maintain a tight calving period in his heifers and across 60-70 of his best cows in his 230-cow Simmental, Saler and Aberdeen cross suckler herd.

He said: "We had similar results this year to last year, and you only need to save one or two calves from dying for it to pay for itself.

"In the study, our calves weaned 30kgs heavier than those to natural service due to the extra growth and superior genetics. We are calving outside, and having batches of cows and calves means we can manage grass better.

"Breeding in this way means we also have uniform batches of bulls and fat cattle, which we can sell off the farm at a year old. Because they are in batches of a similar age, there are also fewer health problems as you are not mixing calves of different ages.

"The fact we are selecting superior genetics and producing more milky cows is certainly aiding growth rates.

"It's also peace of mind when you AI, as we know about 60% of the animals will be in calf immediately with one shot of semen."

However, Mr Henderson says good handling facilities are necessary for anyone taking this route. "There's more to using CIDRs and Ai'ing than sticking a bull in the field. We have self-locking yokes in four fields around the shed, meaning we can AI quite easily and keep cows as stress-free as possible post-insemination, which is a must," he added.

Mr Henderson also says condensing the calving period to a six-week block means he can organise labour more effectively. "It gives you more of a work-life balanced as before we would start calving in March and end in July, and now we are pretty much done in six weeks," he added.