



## BUILDING BETTER COWS

### Meat and Livestock Australia Producer Demonstration Site Project Highlights the Value of Integrating FTAI in Commercial Heifer Mating Programs

Esperance producer group ASHEEP and local veterinary clinic Swans Veterinary Services successfully co-applied for funding from Meat and Livestock Australia (MLA) to administer a Producer Demonstration Site (PDS) within their local area targeting producers which had not implemented FTAI within their commercial heifer mating programs previously. The final report from the now concluded project, catalogued as L.PDS.1711: Improving Heifer Productivity by Integrating FTAI into Commercial Cow Enterprises, can be accessed via MLA. As the name would suggest, the goal of the PDS was to demonstrate the value of integrating FTAI into commercial heifer mating programs, utilising sires of both high genetic merit and accuracy with emphasis on both calving ease and growth characteristics.

It was recognised, by project lead and veterinarian Dr. Enoch Bergman, that synchronising heifers in order to mate them to FTAI at the beginning of a producer's chosen breeding season would provide the enrolled heifers more breeding opportunities within a controlled breeding season, potentially improving pregnancy rates as well as their eventual calving distribution. Heifers that calve early within their scheduled calving season and with less need for calving assistance would be more likely to wean more and heavier calves and have improved rebreeding outcomes when rejoined for their second mating and beyond.

Fixed time AI can also provide access to bulls with both higher accuracy BREEDPLAN Estimated Breeding Values (EBV's) for improved calving ease, shortened gestation lengths, lower birth weights and better growth compared to the EBV's of most of the bulls traditionally sourced within the area from bull sales. Lastly it was postulated that due to the AI sires' superior EBV's and the inherent and obvious advantage conferred by synchronisation, the proportion of heifers that conceive to AI would be expected to not only enjoy a reduction in dystocia, calf mortality and heifer mortality, but also calve earlier and produce heavier calves for their age than the calves sired from most of the bulls used for natural service within both groups enrolled in the PDS.

The setup of the PDS was fairly simple involving 10 producers, 15 sites, and 2447 heifers. The researchers randomly hijacked approximately half of the heifers from each enrolled producer per year, synchronised them, and inseminated them on their traditional mating start date at the same time their siblings were introduced to bulls. The heifers which were enrolled in the AI program then joined their naturally mated siblings ten days later for roughly an additional six weeks at the discretion of each enrolled producer. Enrolled producers were then asked to collect pregnancy data, dystocia rates, calf and heifer mortality rates, weaning weights of calves, and measure the rebreeding success for each enrolled animal.

Using the results from the PDS, each pregnancy within the FTAI integrated group compared to their traditionally mated siblings was shown to return nearly an additional \$90, after costs, per pregnancy to the producer, before factoring in genetic improvement or cow performance beyond her second pregnancy. An absolutely phenomenal result which probably contributed to the observation that most of the enrolled producers either pulled out early from the PDS to integrate FTAI across their entire heifer mating program or vowed to continue integrating FTAI in their heifer mating programs once the PDS concluded.

The mating costs for each producer enrolled in the trial were subsidised by MLA, through the support of Vetoquinol in the form of subsidised Cue-Mate® intravaginal progesterone releasing devices, and Angus semen from five ABS sires and one from Performance Genetics. When the economic analysis was performed, all subsidies were reversed. Having accounted for all costs to each producer for semen, pharmaceuticals, technician time, and travel, the average mating cost to each producer would have been \$22.66 more to AI and back up at 2% bulls than to naturally join at 3% for their individual heifer populations. Producer labour was estimated at 40 hours at \$30 per hour per 100 heifers AI'd over the course of the AI program, bringing the total additional mating cost of integrating FTAI to nearly \$35.

The results of the trial were expressed both as an average farm affect and as a combined data set. The results of the trial showed an improvement in pregnancy rate of 3.1% on the average property with a more modest 0.8% improvement over the combined dataset. The measurable dystocia rate was halved on the average property, with

a reduction of 5.1% rendering again a more modest 1.62% reduction in the combined data set. Calf mortality was reduced by 60% on the average property, and halved within the combined dataset demonstrating a reduction of 2.7% overall. Heifer mortality, whilst low at close to 1% overall, was reduced by over 90% on the average property and by approximately 75% over the entire dataset. The average weaning weights of the calves born from the FTAI integrated groups were 21.5 kgs heavier on the average property or a 15 kg advantage within the combined dataset from the 7 sites able to confirm the parentage of the calves enrolled within the program.

In consultation with a group of Esperance producers, enabling an economic analysis of the findings of the PDS, pregnant heifers were valued at an additional \$100 per animal compared to empty heifers. Dystocia events were estimated to average \$200 in labour and/or veterinary costs per case. Deceased calves were valued at \$500 and deceased heifers at \$2000. Kilograms of calf weaned were valued at \$4 per kilo. Lastly, empty 2nd calvers were devalued by \$1000 per animal should they be empty at their second pregnancy test.

The table below summarises the findings from the combined data sets from the two groups, their differences, an estimate of the potential value of those differences, and a potential defensible cost or benefit for each component of the PDS.

**Table 1. Modelled Return on Investment Calculation**

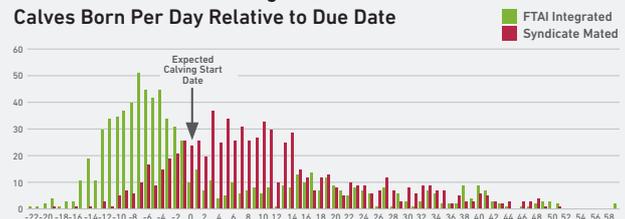
Measured Parameter	FTAI Integrated	Naturally Mated	Difference	Potential Value	Cost	Return
Average Mating Cost	\$148.29	\$125.63	(\$22.66)	(\$22.66)	\$22.66	
Labour Costs in Man Hours per 100 Head Al'd	40 hours	0.00	(\$40.00)	\$30.00/hr	\$12.00	
Heifer Empty Rate	17.3%	18.10%	0.80%	\$100.00		\$0.80
Dystocia Events	5.80%	7.42%	1.62%	\$200.00		\$3.24
Calf Mortality	2.80%	5.54%	2.70%	\$500.00		\$13.50
Heifer Mortality	0.30%	1.30%	0.96%	\$2,000.00		\$19.20
Weaning Weights of Calves (Average over 2 Years)	310.90	295.90	15.0kg	\$4.00		\$60.00
Rebreeding Empty Rate (1st Calvers)	9.90%	12.6%	2.70%	\$1,000.00		\$27.00
Estimated Costs and Returns per Pregnant Heifer in FTAI group not including genetic improvement					\$34.66	\$123.74
<b>Profit returned per Pregnant Heifer due to integrating FTAI</b>						<b>\$89.08</b>

Across the entire Southern agricultural region of Australia, and indeed anywhere in Australia where beef cattle are control mated, the results of this trial could stand to significantly benefit producers who haven't previously integrated FTAI into their heifer mating programs. The PDS has demonstrated that integrating FTAI and utilising sires with appropriate EBV's into heifer mating programs has potential to improve heifer pregnancy rates, improve dystocia parameters, improve subsequent pregnancy rates, and wean more kilograms of calf per mated heifer.

Perhaps most importantly and not measured in the trial, Integrating Fixed Time AI has the ability to set a producer's heifers up to succeed, setting them on a path to enhanced future profitability, potentially paying dividends for several subsequent joinings. Simultaneously, the process allows producers the opportunity to invest in the best possible genetics for their best genetics, their heifers. Artificial Insemination has long been considered an expense by most beef producers, but this trial should conclusively demonstrate that integrating FTAI into commercial heifer mating programs is a sound investment capable of generating solid returns financially, whilst simultaneously able to improve both the herd's structure and genetics.



**3 Years of Combined Calving Data n = 1579**  
Calves Born Per Day Relative to Due Date



**Fig. 1. Calving Distribution**

**3 Years of Combined Calving Data n = 1579**  
Calving Distribution



**Fig. 2. Calving Distribution "Survival Curve"**

All heifers were synchronised for Fixed Time AI using Vetoquinol Cue-Mate® intravaginal progesterone releasing devices.

**Angus Sires Used**

- Ayrvale General G18
- Landfall Leonardo L24
- KM Broken Bow
- Landfall Keystone K132
- Baldrige Command C036
- Murdeduke Kicking K428



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