final report

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Angus Sires for Holstein Heifers

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Break out

The Dairy Farmers Angus Group in Victoria ran a trial to determine if there was an economic benefit in joining Holstein heifers to low birth weight moderate framed Angus bulls rather than Jersey bulls. The main object of the trial was to have 90% of heifers producing live calves from unassisted births. This was achieved.

A majority of the members saw the obvious benefits of producing Angus cross calves. However, since the project was started, more profitable market opportunities have arisen. There is now a shortage of dairy cows, a swing to cross breeding in the dairy industry and increased demand for Wagyu Holstein cross calves. The profitability of joining Holstein heifers to Angus bulls, given the same time and money investment, is less now than when the project was initiated.

The project

Calving problems are a major cost to the dairy industry. Holstein heifers joined to Holstein bulls have very high levels of calving problems. Calving problems mean there are less calves for sale, lower milk production, and a need for more calving supervision. One of the solutions to the problem was to paddock join the heifers to Angus bulls. There were less calving problems, the male calves had an acceptable slaughter value and the heifer calves were raised to be vealer mothers. This worked well for some time; however calving difficulties began to increase with the introduction North American genetics into the Angus breed. The Dairy Farmers Angus Group ran a trial to determine whether joining Holstein heifers to selected low birth weight moderate framed Angus sires of non - North American genetics would reduce calving problems and be a profitable alternative to other breeding options.

Objectives

The objectives of the project were to:

- Artificially inseminate a total of around 600 maiden Holstein heifers with semen from selected low birth weight moderate framed Non-American Angus bulls
- Assist less than 10% of births and to achieve a birth rate of greater than 90% live calves in pregnant Holstein heifers
- Determine the economic benefits of using AI to produce a higher priced steer or heifer calf to be sold at birth or grown out and sold for meat or as a vealer mother.

What was done

Participants from 11 properties inseminated a total of 546 Holstein heifers. Follow up bulls were used after insemination. These bulls were mainly Jersey although two participants used Angus bulls and one used a Hereford bull. Unfortunately due to seasonal conditions, 2 participants sold 177 inseminated heifers prior to mating. This left 429 heifers in the trial. Participants kept joining and calving records; they calculated pregnancy rates, the number of assisted births and the number of lives calves born. Nutrition prior to calving was also documented.

What Happened

Nine of the 11 farms calved down the heifers joined to Angus bulls. Conception rates for the AI program averaged 49.2%. Conception rates varied from 43% to 64%. The percentage of assisted births was 8.53 % and the birth rate was 95.3%. (See Table 1)

Table 1. Conception, calving assistance and death rates for the heifers joined to Angus bulls.

Number of Heifers Joined	Conception rate %	Number Assisted at Birth	Assisted at Birth %	Number of calf deaths	Birth Rate %
429	49.3	18	8.53%	10	95.3

Management and genetics influenced the need for calving assistance. The property with the highest nutrition prior to calving had the most deaths (3) and the highest level of assisted calving (5). On other properties, two heifers that were judged to have narrow pins were also assisted and in one of these cases the calf was also judged to be large. A large calf was also the reason for another death. There were two cases of easy pulls after the calving was judged to be too slow. Some of the calves that died were from non assisted births. Unfortunately, not enough data was collected to determine the reasons for the remaining (9) assisted births. Heifer injury as a result of calving assistance occurred in 3 cases with slight paralysis being the worst injury.

Discussion

Most properties recorded low conception rates. There was no explanation given for this apart from the general low fertility of the Holstein breed. The reasons for assistance and calf deaths varied. High nutrition prior to calving was a significant factor on one property.
Overall, the Angus seamen used did not significantly increase calving difficulties compared to Jersey bulls. Most deaths were due to management (over feeding) or poor structure (narrow pins) on the female side. The main objective of the project: “to assist less than 10% of births and to birth greater than 90% live calves in pregnant Holstein heifers” was achieved.

The Angus cross Holstein calves were significantly more profitable than the Jersey cross Holstein calves See Table 2. At birth, the Angus cross calves were worth $60 to $70 more than the Jersey cross calves. At weaning (12 weeks)and at 12 months, assuming the calves were not sold at birth the margin increases further in favour of the Angus cross calves. The Angus cross heifers are priced higher than the steers due to their demand as vealer mothers. Very few Jersey cross steer calves were kept as yearlings - they have slow growth rates, poor meat yield and a low sale price.

Table 2. The value of Angus X Holstein, Jersey X Holstein at birth, 12 weeks of age and at 12 months of age (2005 prices).

	Value at Birth	Value at 12 weeks of age	Value at 12 months of age
Angus X Holstein Heifer	$60 to $120	$220	$575 (280 kg lwt)
Angus X Holstein Steer	$60 to $120	$240	$550 (300kg lwt)
Jersey X Holstein Heifer*	$0 to $50	$150	$450 (250kg lwt)
Jersey X Holstein Steer*	$0 to $50	$160	$450 (260kg lwt)

* Most of these calves would have been sold at birth

The main cost was the AI program – with semen and insemination costs around $30/cow inseminated (this doesn’t include labour). But with the low conception rate (49.3%) this is equal to $60/live calf. So, based on “calf value” the exercise was at best break even until the calves could be sold as yearlings.

Other than “calf value” there were other economic benefits that are difficult to cost.

Most farmers involved believed they had less calving problems using the semen from low birth weight moderate framed Angus bulls compared to using local Angus bulls. This would have improved conception rates and milk yields following calving.

The main drawback according to most involved in the trial was the extra time and expense in yarding and inseminating the heifers. Often the heifers were on separate blocks to the main dairy herd.

Graham Summerfield from Warragul still uses the New Zealand Angus semen over his Holstein heifers. “It fits in with my system. I join the Angus cross Holstein females and run them on my out paddocks. They are great vealer mothers.” He finds the AI a little difficult but thinks it is worth it. He brings the heifers back to the main block for the AI program.

Next Steps

The economics indicate that it is profitable to join Holstein heifers to low birth weight moderate framed Angus bull. However, most of the participants were concerned about the low conception rates achieved and the time and cost of the AI program. All agreed that if Angus sires of suitable genetics were available, given the same market conditions, they would use them for paddock mating.

Market conditions in the dairy industry have changed since this trial was initiated and this has reduced the profitability of joining Holstein heifers to Angus bulls. There is a greater emphasis on using cross bred cows (Holstein X Jersey) as milkers and there is a shortage of dairy cows. This has increased the demand for cross bred dairy heifers. In addition, there is increased demand for Holstein cross Wagyu steers and heifers.

The Holstein Jersey cross cow and the Red Holstein cross cows are now being seen as more profitable than straight bred cows of any of the three breeds. This has increased the profitability of breeding Jersey cross Holstein females if the same time and money is invested in an AI program.

The demand for marbled beef has increased over the past few years. Wagyu calves tend to be small and easy to calve down. The high returns offered for Wagyu cross Holstein calves ($200 at birth, $400 at 12 weeks and $810 at 12 months for a 300kg steer) make it difficult for Angus cross Holsteins to compete in any operation prepared to invest similar time and money.