UTILIZING FIXED-TIME AI AND HIGH ACCURACY SIRES TO ADD VALUE TO STEER PROGENY THROUGH ENHANCED CARCASS QUALITY

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Limited transfer of existing and emerging technologies to beef enterprises precludes those enterprises from reaching their economic potential and places them at a competitive disadvantage relative to livestock enterprises where such technologies are or have been implemented. Project funding we received from USDA's National Research Initiative Competitive Grants Program had been used to facilitate implementation of a comprehensive program for beet producers focused on the concept of utilizing fixed-time artificial insemination in conjunction with use of high accuracy AI sires to improve carcass quality/merit. The Missouri Show-Me-Select Replacement Heifer Program created "Tier 2" within the program, which is centered around this theme. Utilization of this technology has already been demonstrated to add value to replacement beef heifers, however significant potential awaits producers that utilize the technology to add value to their steers. In essence a value chain systems approach could be used to increase profitability of beef farms through creation of a value-added development and marketing program. The definitive outcome of this program will be to add value to beef heifers and steers by expanding marketing opportunities as a result of technology adoption, production verification, collective action, and best management practices.

Show-Me-Select Replacement Heifer Program – Tier 2 Classification: Heifers will be eligible for Tier 2 in the Show-Me-Select Replacement Program based on the following minimum accuracies of the heifer's sire at the time of sale for the respective traits listed below.

Trait	Accuracy
Calving ease (direct)	.65
Calving ease (maternal)	.30
Weaning weight	.75
Carcass weight	.20
Marbling	.20

Examples of this value added concept are illustrated in the tables below. These tables summarize results from steers from the University of Missouri Greenley Research Center at Novelty, MO and University of Missouri Thompson Farm at Spickard, MO. These herds have been used extensively in our research program for the development of fixed-time AI protocols for beef cows and heifers. The tables summarize carcass merit based on sire group for the 2009 steers that were fed at the Irsik and Doll Feed Yard in Garden City, KS, and which were harvested during the spring of 2010. Tables 1 and 2 include performance of the steers based on sire group (high accuracy, low accuracy or natural service sires) and the maternal grand sire of the steers based on high accuracy, low accuracy or natural service groups. Sires and maternal grand sires listed as

"high accuracy" meet or exceed the accuracy requirements that are required for Tier 2 eligibility in the Missouri Show-Me-Select Replacement Heifer Program.

Each table summarizes the percentage of steers that qualified for *Certified Angus Beef & Prime*. Significant premiums (>$150/carcass) were received for steers that realized these premiums compared to those that did not. The data speak for themselves with regard to the potential for adding value to cattle raised in Missouri and across the U.S. by utilizing fixed-time AI and high accuracy sires.

Table 1. 2009 Steer Performance Data University of Missouri Thompson Farm			
Sire Group	**MGS**	**Number of steers**	**% CAB/Prime**
High Accuracy	High Accuracy	36	81%
High Accuracy	Low Accuracy	22	95%
High Accuracy	Natural Service	8	75%
Total		66	85%
Natural Service	High Accuracy	8	50%
Natural Service	Low Accuracy	5	68%
Natural Service	Natural Service	4	25%
Total		17	47%

Table 2. 2009 Steer Performance Data University of Missouri Greenley Research Center			
Sire Group	**MGS**	**Number of steers**	**% CAB/Prime**
High Accuracy	High Accuracy	11	73%
High Accuracy	Low Accuracy	3	100%
High Accuracy	Natural Service	9	78%
Total		23	78%
Low Accuracy	High Accuracy	10	60%
Low Accuracy	Low Accuracy	1	100%
Low Accuracy	Natural Service	--	--
Total		11	64%
Natural Service	High Accuracy	7	29%
Natural Service	Low Accuracy	1	0%
Natural Service	Natural Service	4	0%
Total		12	17%

Table 3. 2009 Steer Performance Data University of Missouri Thompson Farm & Greenley Research Center (combined results)				
Sire Group	**MGS**	**Number of steers**	**% CAB/Prime**	
High Accuracy	High Accuracy	47	79%	
High Accuracy	Low Accuracy	25	96%	83%
High Accuracy	Natural Service	17	76%	
Low Accuracy	High Accuracy	10	60%	
Low Accuracy	Low Accuracy	1	100%	64%
Low Accuracy	Natural Service	--	--	
Natural Service	High Accuracy	15	40%	
Natural Service	Low Accuracy	6	50%	34%
Natural Service	Natural Service	8	13%	

Steers from the University of Missouri Thompson Farm at Spickard were entered in the National Angus Carcass Challenge. One group of 38 steers received the 1st place award for the 2nd quarter of 2010 for the Central Region with 87% of the steers qualifying for CAB and Prime.

Based on the success rates in utilizing fixed-time AI we have reported from our own research, coupled with working examples across Missouri, it is imperative that producers are made aware of the larger opportunities that await them, based on technology adoption and careful sire selection.