

On the Right Tract
Marketing with Estrus Synchronization and AI

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The Missouri Show Me Select Replacement Heifer program has led Southeast Missouri producers not only to practice improved heifer development, but also adopt more extensive use of estrus synchronization and artificial insemination (AI) in heifers and cows. Producers have records of 8 years of using estrus synchronization and AI to show reproduction has improved, and these strategies coupled with management has helped their bottom line. Several of the producers have implemented a marketing strategy for the bred heifers based on AI and estrus synchronization in their cows and heifers. Producers are working together to purchase semen from bulls to breed to cows and produce a more consistent uniform heifer crop. Producers are also partnering with one another to select the same bull to AI breed those heifers. This has produced more uniformity within herds and between herds and increased demand with volume and repeat buyers.

Southeast Missouri Fall Calving Show Me Select Sales

Southeast Missouri producers organized in 2000 the first fall calving Show Me Select Replacement Heifer sale in Missouri. In reviewing the results of their two previous spring calving sales and other sales in the State the group decided to add extra requirements for the fall calving sale. The motivation was to make the sale more reliable and more attractive to buyers searching not only for replacement heifers but heifers with known birthdates and age, known sires, and hopefully a superior known genetic performance.

Their simple, yet effective requirements over and above the Missouri Show Me Select requirements were:

1. Born and raised on the farm of origin.
2. Birthdates required and calved after May 1 of preceding year.
3. Sires of the heifers have EPD information from their respective breed associations.

This direction was to try to market home raised, known birth date and age, breed and sire information and with background information available from the consignors. AI and estrus synchronization were encouraged.

Fall Sale Breakdown

Table 1 gives a breakdown of Southeast Missouri Fall Calving Show-Me-Select Replacement Heifer Sales since 2003. The bred heifers selling in these four sales averaged 62 to 71% AI bred. There were AI and natural bred mixed lots that are not listed on this table. The comparison is for all AI bred or all natural bred lots that sold. Note that each year the producers have concentrated use of fewer AI sires as in every sale we have more total heifers bred to 1 or 2 sires (Table 2). The \$327 difference in 2006 between AI lots and natural lots has evolved from a planned AI breeding program not just an AI program that uses many AI sires in the sale offerings. The average price for heifers that are AI bred has been going up faster than other sales. Estrus synchronization and timed AI in heifers has helped to bring larger numbers of AI bred heifers that are due to calve very close together to the sale. A majority of the AI bred heifers for the 2006 sale were time bred using the 14 day CIDR protocol and bred at 72 hours. Field trials in 2004 and 2005 with the 14 day CIDR protocol with heifers has peaked interest and adoption. Success is good averaging 63%, with some herds attaining 75 to 80% AI bred first service. Their neighbors see these results, on tours, in educational meetings and at the sale and want to use the same protocol. They find out it is not as time consuming as heat detection and just as successful. These same producers have also implemented ultrasound pregnancy diagnosis which has helped with the accuracy of determining if the heifer is actually bred AI or not. Larger numbers of uniform heifers, bred to the same proven AI bull at close to the same time, and more accuracy in listing which heifers are bred AI is a marketing advantage some sales do not have.

Table 1. Southeast Missouri Fall Calving Breakdown

May Sales	#Heifers	Avg Sale Price	# All AI Lots	Avg AI Price	# Nat Lots	Avg Price Nat	AI-Nat Diff
2003	208	\$1071	36 - 116 Heifers	\$1146	29-76 Heifers	\$ 985	\$ 161
2004	245	\$1392	49 -141	\$1413	33-99	\$1364	\$ 49
2005	235	\$1515	55 - 161	\$1561	27-70	\$1409	\$ 156
2006	225	\$1499	48 - 122	\$1648	34-65	\$1322	\$ 327

Table 2 Service Sire and Price

Year	#	Total # AI Bred	All AI Lots	# AI Sires	Bred to Same Sire	Price
2003	208	133	36-116	19	20	
2004	245	153	49-141	15	30 Sire A	
*2005	235	168	55-161	13	74 Sire C	\$1646
					41 Sire A	\$1500
2006	225	154	48-122	9	60 Sire C	\$1768
					50 Sire D	\$1581

* 2005 – 33 half sisters sired by Sire B bred to Sire C \$1799 - Refer to Table 3

Field Research

The change in marketing and philosophy towards estrus synchronization and AI came in the fall breeding season of 2002. Dr. David Patterson was searching for herds with over 100 cows to do estrus synchronization and timed breeding research. We had three producers decide to participate. In discussions with the producers two of them agreed to use the same sire, AI Angus Sire B (Footnote in Table 1 and Table 3). This would not only take variables away from the research but hopefully would add value to the calves. The sire selected, according to the breeding company, had excellent results in timed AI situations and also his maternal, growth, and carcass traits were excellent. The plan was to try to market these heifers in May 2005 through the SEMO Show Me Select fall calving heifer sale. The research trial showed a timed breeding pregnancy rate of 64% on the three herds using the 7-11 Protocol and breeding at 60 hours. This trial created a lot of interest in timed AI because of the pregnancy results and created interest in continuing field trials in Southeast Missouri using the Co-Synch + CIDR protocol and time breeding at 66 hours. This trial resulted in a 65% first service pregnancy rate. Fall calving herds implementing the Co-Synch + CIDR protocol are averaging 70% first service pregnancy. With only 3 times through the chute, and a total on 9.75 days to complete breeding, it is becoming very popular to schedule breeding and know exactly when you are going to AI breed. Some fall calving producers are seeing excellent results with 3 producers averaging 79, 80 and 81% first service AI for the last 3 years. Producers are seeing a more uniform calf crop and are realizing greater economic returns, not only in improved genetics in their own replacement heifers but when selling bred heifers.

AI Sale Results of Planning Mating 2005-2006

The first trial with AI timed breeding on cows in 2002 produced 67 half sisters sired by Angus AI Sire B and they calved in September 2003. Fifty-five of those were enrolled in the heifer program in the May 2005 Fall Calving Sale. A calving ease Angus sire (Sire C) was chosen by two producers to breed these 67 heifers and 21 additional heifers enrolled for this sale. The 14 day CIDR protocol was used to synchronize these 88 heifers and they were bred on standing heat. They achieved a 70% first service pregnancy rate. Survey results have shown that some producers were searching for more growth in their calves so the sire used was a larger framed, growth sire that met the requirement for calving ease. One other producer aligned with these two producers to also use Sire C for the May 2005 Sale. The total number of heifers bred to Sire C was 137 heifers and they had a 65% first service pregnancy rate. An interesting observation was that 80.1% of these heifers were bred within 12 hours of each other and 94 % within 24 hours. The average breeding time was 72 hours after the prostaglandin injection.

The average price of all AI bred lots in the May 2005 Sale was \$1561 on 55 lots totaling 161 head. (Table 1) There were a total of 115 heifers bred AI to 2 sires (41 to Angus Sire A and 74 to Angus Sire C). The 74 heifers AI bred to Sire C averaged \$1646 and the 41 heifers AI bred to Sire A averaged \$1500. (Table 2)

Thirty-three (33) half sisters sired by Angus Sire B, bred to Angus Sire C, sold in 9 lots and averaged \$1799.(Table 3) Two buyers purchased these 33 heifers and they purchased a total

of 69 AI bred heifers for an average price of \$1716. 50 of these heifers were bred AI to Sire C and the average was \$1759, and 10 bred to Sire A at an average price of \$1640. (Table 3)

These same two buyers returned in 2006 and purchased 70 heifers all AI bred and averaged \$1767 (Table 4). They purchased 51 bred to Sire C for an average of \$1776 and 8 AI bred to Sire D for \$1815.

In the 2006 May Fall Calving Sale 189 (84%) of the 225 heifers went to repeat buyers. They were purchasing heifers from the producers they purchased from in the prior sales because they have had successful results in their management systems and enhanced their profitability. Good management techniques require measurements. One thing that the Show-Me-Select replacement heifer program, estrus synchronization, and the use of AI have taught producers is to write down and keep records on everything. Without data and measurements including total reproduction and with some producers, carcass data, it is hard to make sound management decisions.

Survey results show the Fall Calving Sale shows a 6% calving assistance rate with 1.9 percent of that abnormal presentation. The two buyers in Tables 3 and 4 had a 5% assistance rate with 1.5% of these abnormal presentations. They also report 100% breed back as two year olds. Surveys from buyers and consignors and follow up data from breeding trials show higher conception rates on 2 and 3 year olds that had conceived first service AI. Buyer one said the heifers purchased in 2005 weaned calves heavier than his cows. The second buyer sold the ten heaviest steers, calved in September 2005, in April 2006, and averaged 730# pay weight. The results of these two buyers may turn out to be the sale's best advertisement. One of the keys to these two producers success was buying heifers with superior proven genetics and bred AI to a sire that whose offspring would not only calve easy but give that extra growth.

Table 3 May 2005 Sale – 2 Buyers Volume Summary

Buyer #	Purchased Heifers	Avg Price	Sire B Half Sisters/Bred To Sire C	# Heifers Bred AI To Sire C	AI To Sire A
1	27 AI	\$1641	9/ \$1705	12/ \$1679	10/ \$1640
2	42 AI	\$1765	24/ \$1835	38/ \$1785	
TOTAL/AVG	69	\$1716	33/\$1799	50/ \$1759	

Table 4 Repeat Buyers May 2006 Sale

Buyer	# of Heifers	Avg Price	Bred to Sire C	Avg Price	Sire D- Avg Price
1 *	31 AI	\$1711	20	\$1700	3/ \$1850
2 *	39 AI	\$1813	31	\$1825	5/ \$1795
TOTAL/AVG	70	\$1767	51	\$1776	8/\$1815

* Repeat Buyers from 2005

Marketing the Whole Package

Nine consignors to the Southeast Missouri Show Me Select Sale also finish cattle and market to US Premium Beef. The carcass data collected selling on the grid since 2000 has helped to track sires that are the most profitable. AI creates a chance to use the most proven genetics available in AI studs and select for any genetic traits producers want to improve. AI Angus Sire B had 75 steers as a result of the fall 2002 timed AI trials that were fed on two farms and they graded 17% Prime, 35% CAB, 8% FAB, and 98.4% Choice or above with a 3.09 Yield Grade average. The “increase” in per head premium over the previous year was \$25 by changing sires, which raised their total carcass premium per head to \$86. These producers also track natural service sires and cull the sires that do not meet their goals. We have found 2 natural service sires within commercial herds that were 40% Prime over a two year period. This data was used to market same age calf crop half sisters bred AI. In the fall calving Southeast May 2006 Show-Me Select sale one producer sold 27 all AI bred heifers in 8 lots, bred to Angus Sire C, to repeat buyers for an average of \$1909. Half of these heifers were sired by AI sires and half were sired by the above natural sires with the great production records.

Several Southeast Missouri beef producers use teamwork to market a planned AI bred heifer. Genetics, age and source verified, synchronized estrus to offer a larger number of uniform heifers, and the use of AI to use the most proven sires has enhanced profitability.

Dave Patterson in the 2004 Applied Reproductive Strategies in Beef Cattle could not have said it better. He stated “The expertise to develop and market programmed bred heifers exists, but requires a team approach to managing heifers in terms of nutrition, reproduction, genetics, health, and emerging management practices.”