PERSONAL EXPERIENCES AND ECONOMIC IMPACT RESULTING FROM ESTRUS SYNCHRONIZATION AND AI

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Reproductive Management

I have had the opportunity and pleasure over the last 10 years to work with Dr. David Patterson at the University of Missouri on different synchronization protocols. The latest insemination protocols we have been using are fixed time. We have been using them on both our cows and heifers.

I have been using AI heavily for the last 32 years. Over those years I have tried just about ever type of breeding system imaginable. I have used observation 2 and 3 times a day, MGA, Prostaglandin, Pregnant Mare serum, Syncro-mate B, limited suckling and early weaning. All of these systems worked to some degree. None, however, have worked remotely as well as the fixed-time breeding protocols we are using today.

On the heifers, we are using the day one CIDR insertion, day 14 CIDR removal, day 30 Prostaglandin and breeding 72 hours after the Prostaglandin shot. We give GnRH at insemination.

The protocol we are using on the cows is day 0 GnRH and CIDR insertion, day 7 CIDR removal with Prostaglandin. Insemination is done 66 hours after Prostaglandin with a GnRH dose given at breeding.

We have been getting in the 60 to 70% range on our cows and 55 to 65% on heifers on average. Bull selection plays a very important part in the pregnancy rate. There is a wide variation in conception rates on bulls with fixed-time AI.

The time and labor saving coupled with better results, make the fixed-time breeding systems very appealing. The ability to schedule breeding times has given us the opportunity to AI in our alliance herds that would have never been possible with observation breeding.

The number of times the animals must go through the chute seems to be a sticking point for people with the fixed-time systems (3 times for cows and 4 times for heifers). We, however, have found that we actually spend less time with this system than with estrus observation.

The 4 trips through the chute for heifers take a total of 5 minutes and 36 seconds per heifer. If you multiply this times 2 people, our total labor per heifer is 11.2 minutes.

The 3 trips through the chute for cows take a total of 5 minutes per cow. If you multiply this times 2 people, our total labor per cow is 10 minutes.

For us, this is a tremendous system and a substantial time saver. We calve 90% in the fall so we are breeding in late November and early December. The daylight hours are very short, which makes it even harder for good visual observation for signs of heat. ***We no longer observe for heat at all.*** We just breed when the calendar and clock schedule says it's time.

The Economic Impact of Timed Insemination

There is a long list of positive economic impacts with this system. I want to focus on 3.

Conception rates. The overall increase in conception rates we have achieved with these protocols has been very beneficial. The fact that every cow is in estrus on the first day of the breeding season, gives each of them 4 chances to conceive in a 65 day breeding period. The estrus stimulation of cows has also had a significant influence in increasing conception rates.

The biggest benefit of increased conception rates is a higher retention rate for our females and the need for fewer replacements. This has moved pregnancy status from first to third in our reason to cull animals. In turn, this gives us the ability to cull more on performance traits and increase our selection process for desired results.

Retention rates of the first three groups of heifers that we fixed-time bred are listed below. We have continued to use fixed-time breeding annually on them ever since.

Year born	Number of breeding seasons	% of animals still in the herd	% of AI services resulting in a live calf
2001 L	8	65%	74%
2002 M	7	71.5%	75%
2003 N	6	63%	77%

The percentage of animals still in the herd comes from the number of heifers we calved the first time and includes all culling reasons and death loss.

Increased age and access to more females. The ease of fixed-time breeding has given us access to herds of cattle owned by individuals that would never have considered AI if it required daily observation and gathering of cattle. I have now been fixed-time breeding for three years in four of my alliance herds. These herds have a total of 390 females. The up front benefit of fixed-time breeding for these individuals has been three fold. First, the average age of their calves at weaning has increased by 11 days. This alone pays for all the expenses for breeding. Second, the time saving at calving for all of them has been significant. More concentrated calving has also resulted in less death loss at calving. Third, is the improved genetic makeup of their herds.

The availability of high quality genetics. The access to high quality genetics is certainly the biggest positive of all. Also, the ability to use one bull over a large number of females is of great

benefit. We have been using AI for over 35 years. Our goal has been to produce cattle that work on grass in a low input system. We have total performance records from birth weight to carcass traits. Our females must maintain a 365 calving interval in that low input system I mentioned above. With access to large volume of genetics through AI we can do this and also breed for a high quality product. Our business is two fold. One, to produce high quality females for the Show-Me-Select Replacement Heifer (SMS) program, and two, to produce high end white table cloth beef for the consumer. We want to capture premiums everywhere we can.

We have been very pleased with and thankful for the SMS program. It has given us the ability to create and capture true value for our commercial females.

We have been retaining ownership in our calves through the feedlot stage and taken carcass data for over 20 years. Marketing our finished cattle through the USPB quality grid has been very beneficial for us and has given us a great deal of genetic information to use in our breeding program. It has also allowed us to capture more value for our genetics. Below is the performance of our last two pens of steers and one pen of heifers we fed at Irsik and Doll feed yard and marketed through USPB.

No. head	**ADG**	**Dry matter conversion**	**Prime %**	**CAB %**	**BCPR %**	**Select %**	**YG 1**	**YG 2**	**YG 3**	**YG 4**
Steers										
151	3.56	5.30	23%	58%	10%	0%	1.5%	21%	68%	9.5%
Average carcass premium per head was $115.24										
Heifers										
74	3.48	5.40	15%	55.4%	28%	1.4%	0%	23.2%	74.3%	2.5%
Average carcass premium per head was $101.59										

We have been pleased with the results of AI in our herd. Artificial insemination has become easier, cheaper and more efficient for us with the fixed-time breeding protocols . Fixed-time breeding has become an integral part of our operation, and we will continue to use this technology as much as possible.