OBJECTIVES ASSOCIATED WITH IMPLEMENTING AI WITHIN MARKETING ALLIANCE BASED PROGRAMS

Kevin Thompson
Middle Tennessee Research and Education Center, University of Tennessee AgResearch

1) Increase calf uniformity
   a. Reduce length of calving season across multiple producers (calf age)
   b. Influence genetics and phenotypic traits associated with uniformity
      i. Frame size
      ii. Muscle thickness
      iii. Color
      iv. Growth potential
   c. Maximize management efficiencies
      i. Commingled health protocols
      ii. Management of group: Age and Source Verification
      iii. Management of group: Genetic verification
2) Quickly improve genetic potential within cow herds across producer groups
   a. AI-sired replacement heifer retention
      i. Appropriate breeding age
      ii. Positive impact on longevity
      iii. Greater control of performance traits
3) Enhance Marketability
   a. Known genetic make up
   b. Information
   c. Uniformity
   d. Quantity
   e. Reputation
4) Increase marketing options
   a. Load lots
   b. Greater bidding audience
   c. Additional heifer marketing options
5) Allow for crossbreeding and management of heterosis within land restricted herds
6) Management tool against dystocia in first calf heifers

Primary Method of Estrus Synchronization/AI application

Co-Synch plus CIDR

GnRH +CIDR (day 0)

PG, CIDR removal (day 7)

54 +/- hours: Mass breed + GnRH (day 9)

*occasionally utilize 66 h protocol for cows

Why this method of synchronization?

Aids with time restriction associated with off farm jobs

Enables multiple groups to be synchronized and bred over a staggered 4 to 5-day schedule

Benefits

Reduces number of herd sires required

Enables large number of females to conceive early in breeding season

Ability to schedule breeding

Increase number and uniformity for marketing and selection

Tends to improve management skills

    Calving

    Health management

Negatives

Cost

Number of times through the chute

Tendency to have false expectations

Time and labor intensive

Cumulative Effects of Estrus Synchronization and Artificial Insemination at Hillwinds Farm

Tim Sutphin
Dublin, VA

The value of estrus synchronization and artificial insemination programs has been documented for some time. These programs have not achieved wide spread acceptance within the commercial cattle industry. Though actual out of pocket costs are similar to natural service, the additional return per cow, depending on market, timing, and service sires used, these programs can add 15 to 20 percent to the gross product value. Many producers don't identify AI as a priority to their business. The reasons vary but I would say that primarily they do not need the extra income produced through AI to continue their livelihood. Further, AI probably challenges their comfort zone because of the necessary planning, science, and labor involved.
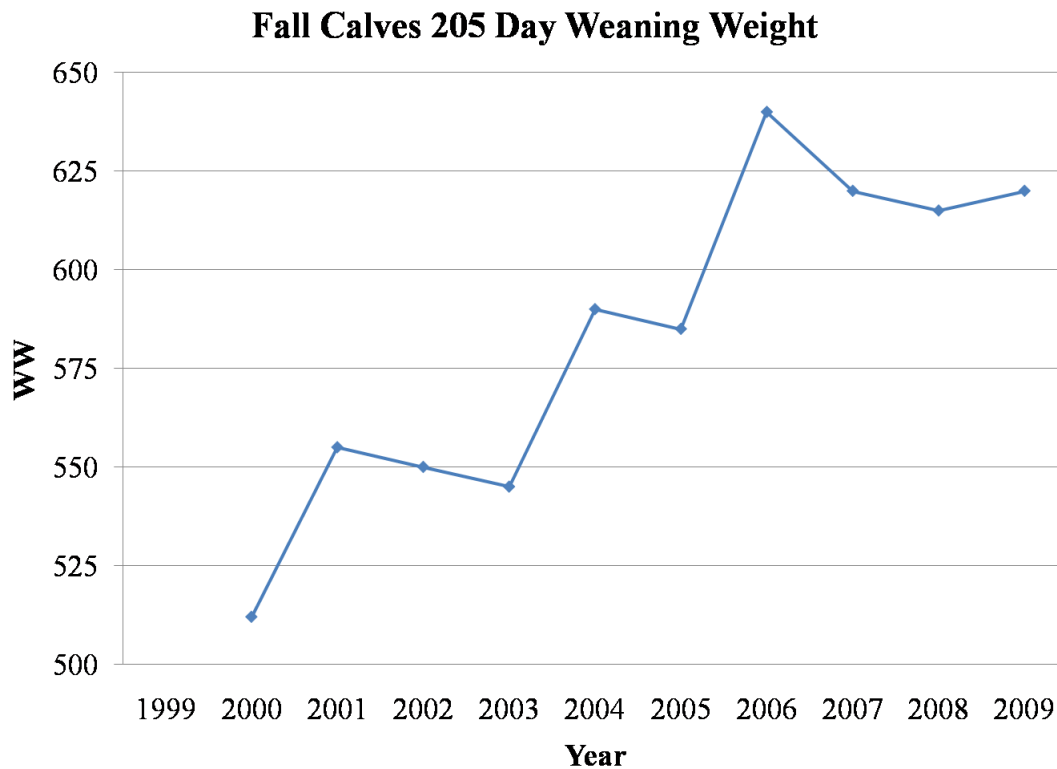
My purpose for this symposium is to demonstrate the cumulative effects of estrus synchronization and artificial synchronization over an extended period of time. Until 1996 our operation was somewhat typical, buy good registered bulls and sell calves in a comingled graded sale. In 1996, I was encouraged to retain ownership on my calves because of the poor calf market. We were able to obtain individual carcass data that year and I was surprised to see the variation between the best and the worst. I thought that there must be a way to make the cattle more consistent.
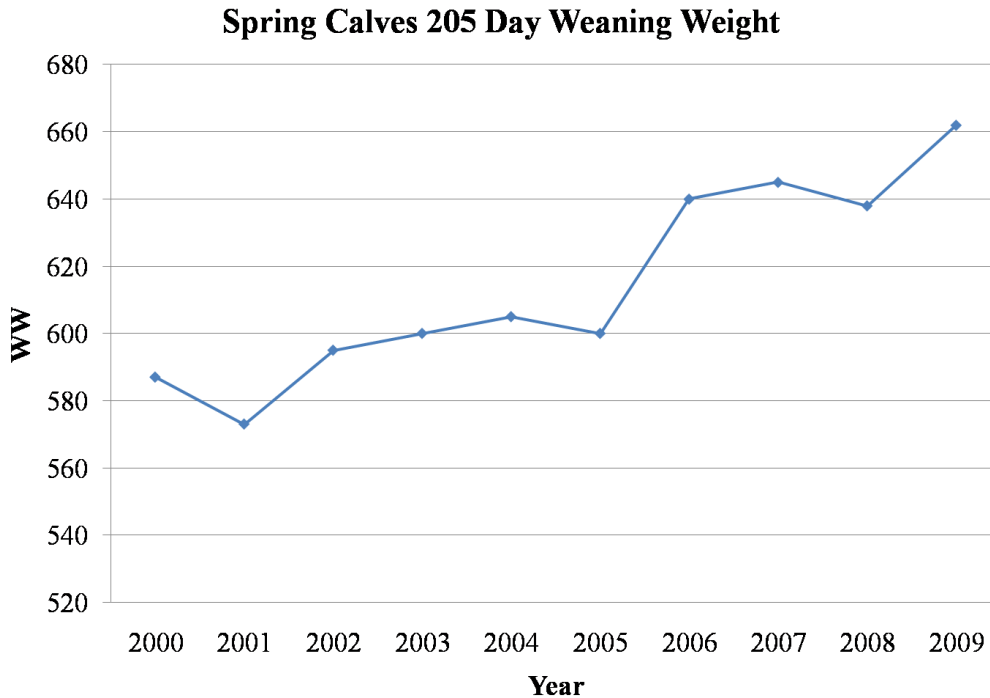
It didn't happen all at once. My ideas evolved over time. There were some obvious ways to improve consistency such as producing calves that are closer to the same age and breed composition while maintaining a cross breeding program. In 1999, we started an estrus synchronization and artificial insemination program. We used the ov-synch protocol and decided to breed all cows AI one time. We were able to achieve a 64% pregnancy rate. Our average calf age at weaning increased by 16 days and with 85% of the calves calving in the first 30 days of the calving season. In sire selection, we focused on traits to improve performance, maternal, and carcass traits. The guidelines needed to be reasonable to have sufficient mating options. We wanted to use bulls with structural soundness, good udder quality, and be in the 5 frame score range. We also wanted bulls in the top 25% of yearling weight, milk, marbling, and REA. We used breed average for birth weight and fat.

Our priorities have changed some over time. Today, we mainly use bulls with 85 to 100 pounds yearling weight and in the 50 dollar beef range. I use the good proven bulls that do many things

well but avoid the extreme outliers. By keeping to this plan over time, cattle quality improves each generation.

Since 1999, we have synchronized and bred 22 calving seasons and 7,000 cows. We have had excellent tools to use in synchronization and have been able to maintain our AI pregnancy rate. The program has improved our overall pregnancy rates and has lowered our calfhood death rates as well as the number of assisted births. The 205 day weaning weights from 2000 to 2009 have increased in the fall calving group from 525 pounds to 646 pounds and in the spring calving group from 585 to 669 pounds (see graphs).

Fall Calves 205 Day Weaning Weight

Applied Reproductive Strategies Conference Proceedings August 5 & 6 Nashville, TN

Spring Calves 205 Day Weaning Weight

 The calves are in a backgrounding program for 45 to 70 days and then are shipped to commercial cattle feeders in Kansas in 1999 and 2000 and since that time have been shipped to Nebraska.

Because of the backgrounding, health program, and feedyard supervision, this past year's death loss in the feedyard was .5% and the percentage of realizers was zero. The feedlot rate of gain has certainly improved but on a year to year basis is greatly affected by calf condition and weight at the beginning of the feedlot phase and the weather conditions during feeding. The following graphs show the average hot carcass weights of the steer calves from 2001 to 2010. The weights show some inconsistency because of weather, feed prices, and market prices. My records indicate carcass weight has the most influence on carcass price.

Fall Steers Hot Carcass Weight
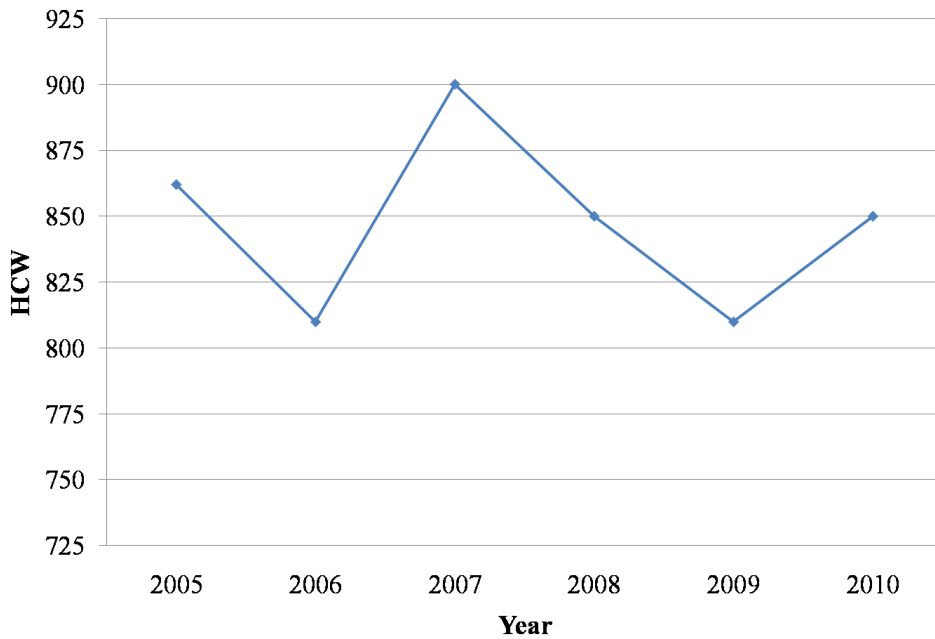

Spring Steers Hot Carcass Weight
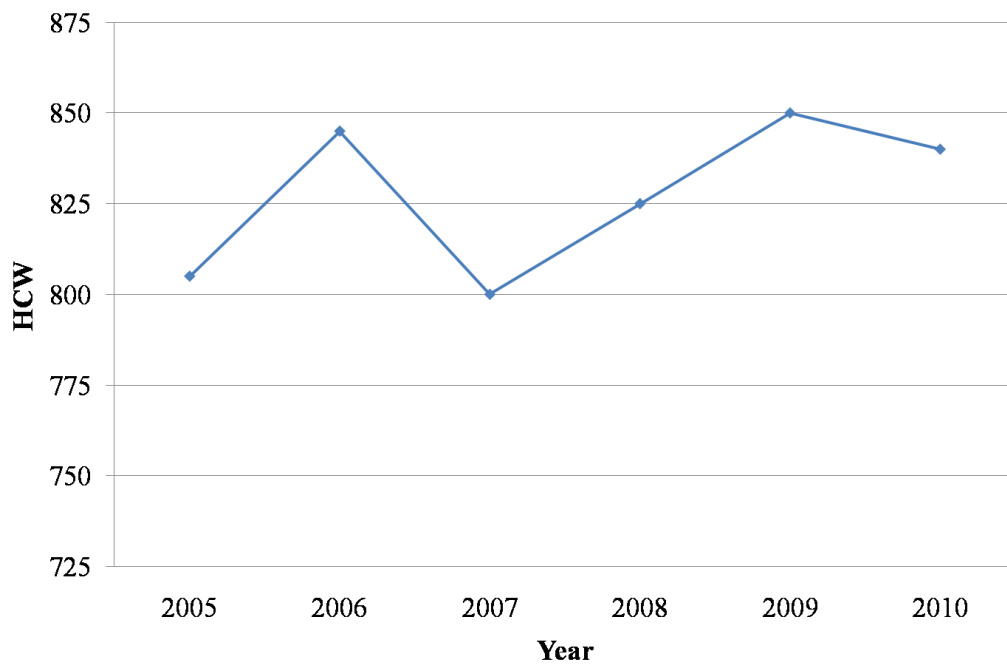
The number of cattle that are choice or better has made steady progress (see graph). I think it is interesting that in years where growth rate was slowed by weather conditions, the percent choice or better improved and in higher growth years the percent choice or better was lower although progress over time was maintained.

Fall Steers % Choice or Better
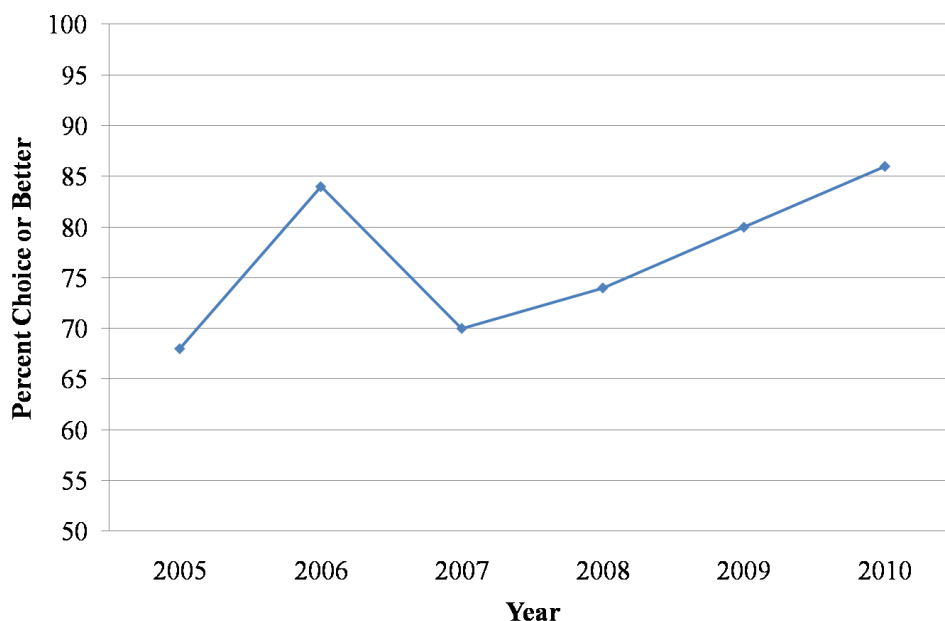
Spring Steers % Choice or Better
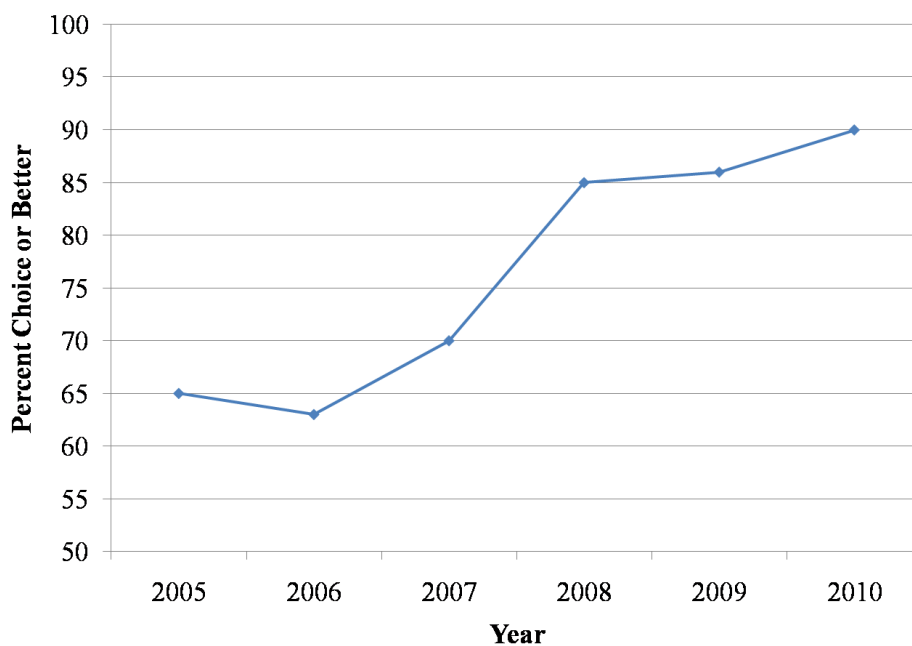
The average rib eye area has increased from 12.3 square inches to 13.4 square inches. Our cattle would normally harvest with slightly more than .50 inches of backfat because we are trying to add quality grade and carcass weight. Yield grades have not changed a lot. We run 35 to 45 percent 1s and 2s and percent yield grade 4s has been 4 to 8 percent. These numbers have seen little change throughout the years.

The last bit of data that I wanted to look at is gross return per cow and total cow cost (see graph). Since 2001, we have seen steady increases in gross return per cow. The increase in 2001 was due to the addition of the AI program, markets, and changing feedlots. The increase in 2008 was due to a ramped up effort to produce and sell more bred heifers along with continued herd improvement which I attribute to several factors including AI. Profitability has remained relatively constant because of increased costs but as you can tell it has become increasingly more difficult to maintain our level of net return. AI and retained ownership are two key factors in making our operation viable.

Gross Return and Cost Per Cow
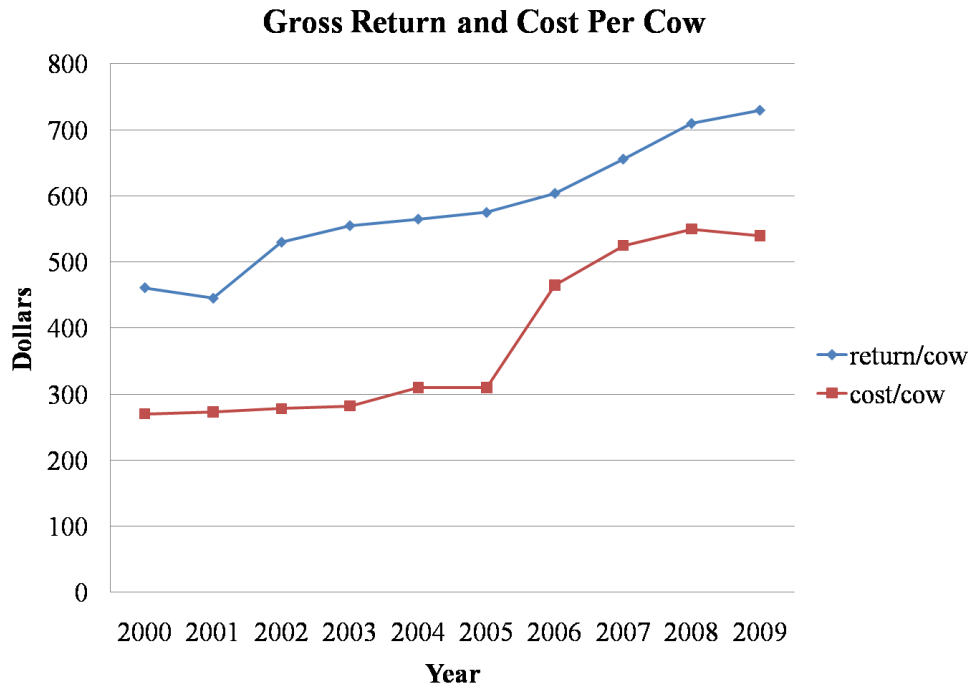
As with any business, ours is a work in progress. We have made plenty of mistakes along the way. Part of that is trying to make adjustments to improve. I hope that I have impressed upon you that it takes a passion for the job and that to have a successful synchronization and AI program, it has to be a high priority for the operation. I believe, in terms of management practices, nothing returns more per dollar invested than does estrus synchronization and artificial insemination.

177