

Spring 2009 EPDs Now Available

by Larry Keenan, Director of Breed Improvement

Spring breeding season is quickly approaching and it is time to start making those all important breeding decisions. With the sire accounting for 50 percent of the calf crop genetics, it is obvious that proper sire selection is the best and quickest way to increase the quality of your calf crop, which in turn will mean more money in your back pocket. Producers use various

measures in an attempt to determine the genetic potential of sires. Some examples are EPDs, ratios, actual/adjusted measurements, or visual observation. However, research has proven that, by far, the best tool in predicting an animal's genetic merit is Expected Progeny Differences (EPD). EPDs are the only genetic prediction that account for environmental influence, management, mating bias, and performance of related individuals in different contemporary groups and herds. These features make EPDs far superior to any other genetic predictor. With the Spring 2009 National Cattle Evaluation (NCE) recently completed, you now have the most up-to-date EPDs to employ in your breeding decisions.

Statistics

Through the NCE we are able to provide statistics that allow you to compare animals you own, or may purchase, to other animals of the same classification (Proven and Opportunity Sires, Active Cows, and Non-Parents). Table 1 details the percentile table for the Proven and Opportunity Sires. From this you can determine how animals you are using, or considering using, rank for any particular trait. Another interesting statistic that results from the NCE are the genetic trends for each trait. These trends are highlighted in Figures 1, 2, 3, and 4.

Accessing the new EPDs

Although there are several ways to view the information derived from the NCE (printed Sire Summary, RAAA website, and whole-herd EPD reports), in my opinion the best way to access the new EPDs is via the internet through the RAAA website: RedAngus.org. Not only does the website contain the electronic version of the Sire Summary, but it also features an Animal Search tool that allows you to search for the EPDs on any animal registered in the RAAA database, not just the 1841 sires listed in the Sire Summary. It is important to remember that every animal in the RAAA database receives updated EPDs and accuracies during every NCE. Another useful tool located on the website is the EPD Search. This tool allows you to enter EPD ranges that best meet your breeding strategy, then searches all sires in the RAAA database, and returns a list of sires that meet your requirements. This tool greatly reduces the time needed to find bull(s) that will fit your breeding program.

Figure 1. Growth Trends

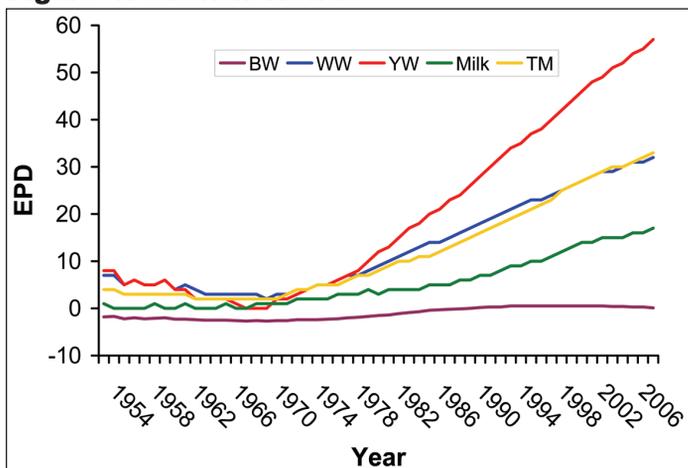


Figure 2. ME Trends

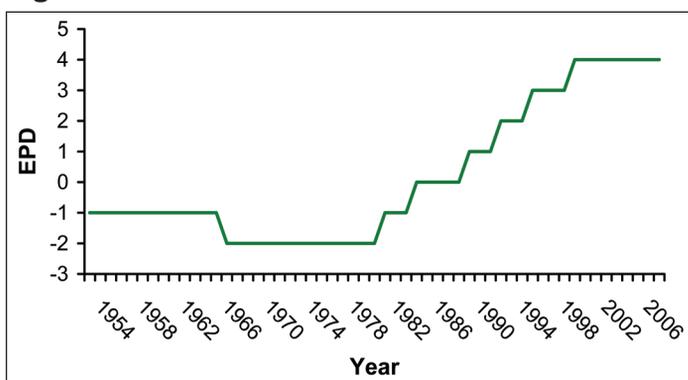


Figure 3. Reproductive Trends

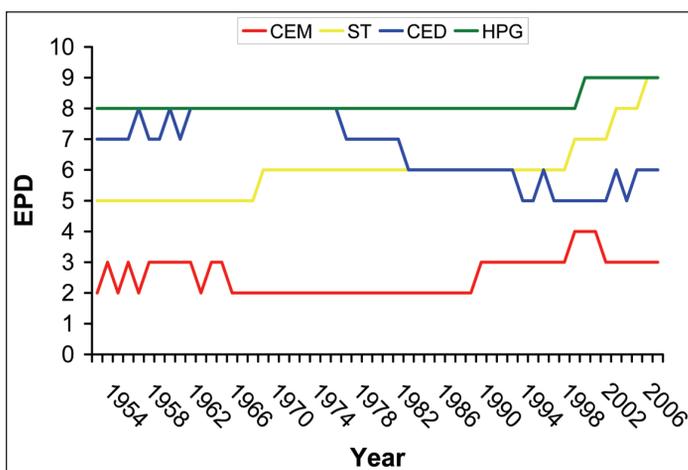
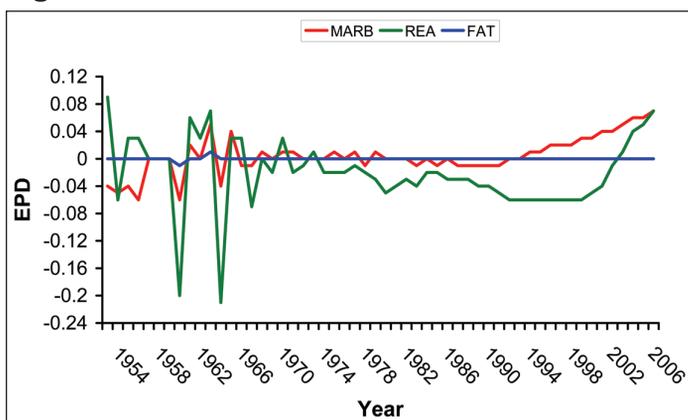


Figure 4. Carcass Trends



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RAAA was founded in 1954 as the beef industry's first performance based association. The founders' desire was for the cattle to be objectively described by industry leading genetic predictions. The current Association has implemented many policies to achieve this goal: Total Herd Reporting - mandatory reporting performance of all progeny, not just the ones good enough to register; Technical Committee - overview of EPDs to separate politics from science; Economically Relevant Traits - RAAA concentrates its efforts on describing traits that impact a producer's bottom line. The combination of these tools provides cattle producers with the most financially stimulating tool on their ranch: reliable genetic predictions.

Percentiles for Proven and Genetic Opportunity Sires in the 2009 Sire Summary

| Top % | CED | BW | WW | YW | Milk | TM | ME | HPG | CEM | ST | MARB | REA | FAT |
|-------|-----|------|----|----|------|----|----|-----|-----|----|-------|-------|-------|
| 1% | 18 | -5.9 | 57 | 99 | 31 | 53 | -8 | 16 | 13 | 15 | 0.38 | 0.55 | -0.03 |
| 2% | 16 | -5.2 | 54 | 94 | 29 | 51 | -7 | 15 | 12 | 14 | 0.34 | 0.49 | -0.03 |
| 3% | 15 | -4.8 | 52 | 91 | 28 | 49 | -6 | 15 | 11 | 14 | 0.32 | 0.46 | -0.02 |
| 4% | 15 | -4.4 | 51 | 89 | 28 | 48 | -5 | 14 | 11 | 13 | 0.30 | 0.43 | -0.02 |
| 5% | 14 | -4.1 | 50 | 87 | 27 | 48 | -5 | 14 | 10 | 13 | 0.28 | 0.41 | -0.02 |
| 10% | 12 | -3.2 | 46 | 81 | 25 | 45 | -3 | 13 | 9 | 12 | 0.23 | 0.33 | -0.02 |
| 15% | 11 | -2.5 | 44 | 77 | 23 | 43 | -1 | 12 | 8 | 11 | 0.20 | 0.27 | -0.01 |
| 20% | 10 | -2.0 | 42 | 73 | 22 | 41 | 0 | 12 | 7 | 11 | 0.17 | 0.23 | -0.01 |
| 25% | 9 | -1.6 | 40 | 70 | 21 | 40 | 1 | 11 | 6 | 10 | 0.15 | 0.20 | -0.01 |
| 30% | 9 | -1.2 | 38 | 68 | 20 | 38 | 1 | 11 | 5 | 10 | 0.13 | 0.16 | -0.01 |
| 35% | 8 | -0.8 | 37 | 66 | 19 | 37 | 2 | 10 | 5 | 9 | 0.11 | 0.13 | 0.00 |
| 40% | 7 | -0.5 | 36 | 63 | 19 | 36 | 3 | 10 | 4 | 9 | 0.09 | 0.10 | 0.00 |
| 45% | 7 | -0.1 | 34 | 61 | 18 | 35 | 3 | 9 | 4 | 8 | 0.08 | 0.08 | 0.00 |
| 50% | 6 | 0.2 | 33 | 59 | 17 | 34 | 4 | 9 | 3 | 8 | 0.06 | 0.05 | 0.00 |
| 55% | 5 | 0.5 | 32 | 57 | 16 | 33 | 5 | 9 | 2 | 8 | 0.04 | 0.02 | 0.00 |
| 60% | 5 | 0.9 | 30 | 55 | 15 | 32 | 5 | 8 | 2 | 7 | 0.03 | 0.00 | 0.00 |
| 65% | 4 | 1.2 | 29 | 52 | 15 | 31 | 6 | 8 | 1 | 7 | 0.01 | -0.03 | 0.00 |
| 70% | 3 | 1.6 | 28 | 50 | 14 | 30 | 7 | 7 | 1 | 6 | -0.01 | -0.06 | 0.01 |
| 75% | 3 | 2.0 | 26 | 48 | 13 | 28 | 7 | 7 | 0 | 6 | -0.03 | -0.10 | 0.01 |
| 80% | 2 | 2.4 | 24 | 45 | 12 | 27 | 8 | 6 | -1 | 5 | -0.05 | -0.13 | 0.01 |
| 85% | 1 | 2.9 | 22 | 41 | 11 | 25 | 9 | 6 | -2 | 5 | -0.08 | -0.17 | 0.01 |
| 90% | 0 | 3.6 | 20 | 37 | 9 | 23 | 11 | 5 | -3 | 4 | -0.11 | -0.23 | 0.02 |
| 95% | -2 | 4.5 | 16 | 31 | 7 | 20 | 13 | 4 | -4 | 3 | -0.16 | -0.31 | 0.02 |

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Stayability EPD Improvements

The ability to make genetic improvement while maintaining critical mass continues to be a challenge faced by many commercial producers. Due to the culling of open females, or those with structure issues (ex. bad udders, feet, etc.), producers are forced to retain below average producing females in order to sustain threshold cowherd numbers. In an effort to measure a sire's ability to produce females who remain productive in the herd, RAAA released a Stayability EPD in 1994. However, with this trait becoming increasingly important to producer profits, research was commenced to determine if there were ways to make the Stayability EPD a better genetic selection tool. After many Technical Committee discussions and EPD calculation developments made by

Colorado State University, RAAA has released the new Stayability EPD. One of the significant limitations to the original Stayability EPD was the low accuracy of young sires. The original Stayability calculation first observed daughters at 6 years of age, thus a sire was at least 8 years old before his Stayability accuracy increased above parental average. Initial research verified that a female's ability to remain productive in the herd as a 3, 4, 5, and 6 year old had a strong genetic relationship. Therefore, the new Stayability EPD calculation includes measurements on young daughters to predict their sire's Stayability EPD. This results in increased Stayability accuracy across young sires.

When RAAA's Stayability EPD was released in 1994, Total Herd Reporting (THR) was still in its infancy. Due to the fact that

Stayability is calculated by observing a female's production record, the initial calculation of Stayability was developed for non-THR data. This calculation basically observed if a female who entered the herd (measured by determining if she weaned a calf) remained in production until she was 6 years of age. Therefore, a female who entered the herd could fail to produce a calf as a 3, 4 or 5 year old, but still receive a positive observation for Stayability if she weaned a calf as a 6 year old. Obviously, this is not parallel with typical commercial beef production practices. With RAAA producers submitting THR data for over a decade, the new Stayability EPD accounts for female's productive ability each year. More importantly, the new Stayability EPD requires females to produce a calf each year. In the case that a female enters the herd and subsequently fails to produce a calf

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as a 3 year old she automatically receives a negative observation as a 4, 5, and 6 year old. (Note: ET Donor cows removed from production due to being flushed are not penalized by this change.) In addition, females receive a negative observation for "rolling-over" to the next calving season (i.e. a female who enters production by having a calf born in the Spring will be penalized if she moves to calving in the Fall). This is not based on the THR schedule; rather, females must calve subsequently in a 1 year +90 day window from the date the previous calf was born.

The last improvement included a change in the observation used in calculating the new Stayability EPD. The original Stayability EPD observed if a female brought a calf to the weaning pen. The error in this measurement was that it included both the genetics of the cow's ability

to produce a live calf as well as the calf's ability to survive until weaning. To eliminate the noise of calf survivability, the new Stayability EPD calculation uses a female's calving record. Note: Females with a dead calf record receive a positive observation due to the inability to positively know if the calf was born dead, or died shortly after birth. Another benefit of using calving observations resides in eliminating the possibility of a female receiving a negative observation due to her calf dying for abnormal reasons.

With the implementation of these improvements it's not surprising that many animals' Stayability EPD changed. Although these changes can be significant, the new Stayability EPD is certainly a better genetic prediction that you can implement to make genetic improvement within your herd. ■

Stayability Basics

Stayability - Predicts the probability that a bull's daughters will remain in the herd until at least 6 years of age.

Example: Bull A has a 5 Stayability EPD while Bull B has a 15 Stayability EPD. If these two bulls were randomly mated to a group of cows, the resulting daughters of Bull B would have a 10% higher probability of remaining in the herd until at least 6 years of age as compared to the daughters of Bull A.

Or...

If these two bulls were randomly mated to a group of cows, Bull B would have 10% more daughters remaining in the herd until 6 years of age as compared to the daughters of Bull A.