

# BY THE NUMBERS

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## Staying Power

*American Angus Association released Functional Longevity research EPD Oct. 25, 2023.*

Cow herds across the nation define the optimal maternal female in a variety of ways based on resources, management and environment. However, most breeders and commercial cattlemen can agree, a female that produces a calf every year during her lifetime is one we would all like to have in our herds.

Recently, the American Angus Association released a research tool for members to select for just that. Functional Longevity (FL) predicts which bulls will sire daughters who are expected to produce more calves by 6 years of age.

### Dive into the data

This trait is sex limited, like heifer pregnancy or maternal milk,

meaning that only females can provide the actual phenotypes for the genetic evaluation. The research tool is expected to define sire lines that produce daughters who more readily stay in the herd and produce a calf every year.

While data collected through Angus Herd Improvement Records (AHIR®) Inventory Reporting is used as an anchor for this evaluation, data collectend on any female born after 1990 is currently used for this research expected progeny difference (EPD). In fact, records on nearly 1.9 million cows are currently used in this research evaluation. This is data from both the American Angus Association, which has had voluntary Inventory Reporting since 2012, and

the Canadian Angus Association, which has had mandatory Inventory Reporting for nearly 25 years.

The FL research EPD predicts the number of calves a sire's daughter is expected to produce on average by 6 years of age compared to other sires' daughters in the population. Calving events and culling records on individual females are used to count the number of calves a female produces during her lifetime.

Current records on females ages 2 to 10 years of age born after 1990 and who have calved as a 2-year-old female are used in a random regression model to predict the research EPD.

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## Why six?

Even though the data utilized on females spans from 2 to 10 years of age, the research EPD is being predicted at 6 years. This is done for a couple of reasons.

The first reason is 6 years of age is where the heritability ( $h^2 = 0.09$ ) is maximized — meaning once we hit 6 years of age, the model has captured the maximum genetic variance available with the current data set. Secondly, genetic correlations between ages 6 to 10 years of age are very high ( $>0.90$ ), meaning minimal re-ranking is taking place after this point. Finally, 6 years is the recommended age set through the Beef Improvement Federation guidelines, which brings continuity to national cattle evaluations.

## Practical application

When studying the FL research EPDs, higher EPDs are better as they predict future female progeny will have the genetic ability to produce more calves by 6 years of age. If your breeding goal is to increase the number of calves produced, the sire with a higher EPD is more desirable compared to a sire with a lower EPD.

For instance, in Table 1, Sire A has a research EPD of 1.5 while sire B has a research EPD of 0.5. This means sire A's daughters are predicted to produce one more calf by age 6 compared to sire B's daughters.

**Table 1: FL EPD Comparison by Sire**

	FL EPD
Sire A	1.5
Sire B	0.5
<b>Difference</b>	<b>1.0</b>

## Learn More

Producers wanting to see the FL research EPD for females in their herd need to enroll in Inventory Reporting. The next enrollment period is open from Nov. 1 to Jan. 15 and is best suited for primarily spring-calving herds. Primarily fall-calving herds should enroll May 1 to July 15.

Have questions about the FL research EPD? Ask during the next **Angus University webinar Dec. 5 at 7 p.m. CST**. Register at [bit.ly/AngusU1223](https://bit.ly/AngusU1223) or scan the QR code.



All in all, the research EPD has limited spread (EPD standard deviation = 0.08) across the population as one would expect with a new EPD with a low heritability.

Although the current heritability is low, a tool like this can still be used to make genetic progress in the population. One of the key points to remember is genetic improvement for this trait is not about the individual female, but rather it is about the aggregate information provided on sires' daughters.

One female that has a calf every year until 10 years of age will not be able to accelerate the rate of genetic change of the population by herself. If hundreds of her sisters, however, are reporting the same result using that sire or those sire lines, over time it will lead to positive genetic changes in the Angus breed.

## A path forward

FL will stay in the research EPD format for the next several months as we continue to allow the Inventory Reporting data to mature. With the research EPD in hand, AGI and the Association will start to investigate the accurate economic weight this new trait could potentially have on

maternal weaned calf value (\$M). Finally, better data collection will allow for more accurate FL research EPDs, so it is imperative that members looking to make genetic progress in this trait get involved with AHIR's Inventory Reporting to ensure data on every female is being turned in.

For more information on how to get involved in Inventory Reporting, please contact the Association's Performance Programs department.



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