

BY THE NUMBERS

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Functional Longevity Research EPD

A welcome addition to the selection toolbox.

Profitability and sustainability of beef cattle production depend on many factors, and cow longevity is certainly one of them. Angus breeders have ranked cow longevity as a priority for research and development of new tools and programs within the American Angus Association.

With that in mind, Angus Genetics Inc. (AGI) set its sights on additional research around the topic in 2018. This was not the first time research around the topic had commenced. In fact, about eight years prior similar research had been executed. Although at that time, more whole herd data was needed to support this evaluation. Therefore in 2012, the MaternalPlus® program, now acknowledged as AHIR® (Angus Herd Inventory Reporting), was started to capture when females were successful in the calving season and if they weren't, when and why they left the herd.

There are several trait definitions and modeling approaches that can be used to create expected progeny differences (EPD) for this particular trait. The Functional Longevity (FL) definition made the most sense to accommodate the data reported by Angus breeders within the Association's database and for its alignment with selection goals.

Despite modeling differences, the selection objective is often the same — to select sires that will produce daughters that remain in the herd and produce a calf every year.

Predicting expected calves produced

After extensive research to fine-tune the data and the modeling, the FL research EPD includes data from cows of ages 2-10 years, and culling codes are also taken into consideration when available.

Using this data and the current model being implemented, it is possible to estimate the heritability for FL across time, and then predict the EPD when the heritability is at the highest point. Based on the current research, the heritability is maximized at 0.09 at 6 years of age (see Figure 1), which supports the prediction of EPD at that age.

Using all this information across the years, the FL research EPD predicts the number of calves a sire's daughter is expected to produce by 6 years of age compared to other sires in the population, and the unit of the trait is number of calves produced by 6 years of age. In this context, a higher EPD means that on average, a sire's daughters are predicted to produce more calves by 6 years of age, compared to a lower EPD.

Table 1: Using the Functional Longevity research EPD to compare sires.

| | FL EPD |
|-------------------|------------|
| Sire A | 1.5 |
| Sire B | 0.5 |
| Difference | 1.0 |

As an example, if Sire A has an FL EPD of 1.5 and Sire B has an FL EPD of 0.5, on average, the daughters of Sire A are expected to produce one more calf by age 6 compared to Sire B's daughters (Table 1).


Continuous improvement

While the current FL research evaluation is a good tool to help Angus breeders start to understand how sires rank for this important trait, data recording and participation in Inventory Reporting are of utmost importance to allow further research and refinement of the trait.

It is imperative to understand we will take the next several months to hear feedback from the membership and industry to continue to make this tool the best it can be. To do that, members involved in Inventory Reporting who have access to FL Research EPDs on their individual

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females as well as all members with access to the sire list are encouraged to submit feedback. For producers wanting to gain visibility to FL research EPDs on their own herd, they need to enroll in Inventory Reporting to do so. The current enrollment period is open until Jan. 15. For more information on Inventory Reporting, see The Data Dive on page 106.

Together we may find details that need to be critiqued, and updates to the FL EPD may be warranted between now and when this trait moves into the final production stage. The FL research EPD was scheduled to be released Oct. 25, and currently the final production stage is slated for June 2024 during the annual updates to the genetic evaluation. 

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Figure 1: Functional longevity heritability estimates calculated across ages. (black = USA, green = AUS, blue = CAN, and purple = NZ animals registered in the Angus Australia herd book).

