



## Colorado Science and Engineering Fair

## 2024 Individual Project Abstract Form

**Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.**

Title of Project: Analysis of Expected Progeny Difference: Predictability in Beef Cattle

Finalist's Name: Maggie Anderson

School and City: Yuma High-school, Yuma Colorado

Sponsor's Name: Amy Melby

Category: Animal Sciences (ANIM)

Division: Senior (9th - 12th grades)

Abstract (250 words or less):

Expected Progeny Difference (EPD) is a tool used in the beef industry, to determine the probability of genes transmitting from parent to offspring, eliminate undesirable traits, and create a specific genetic profile. Data such as observed physical traits, the performance of relatives or progeny, and genomic data are used to compile charts that predict the genetic potential of that animal's offspring.

EPDs are widely used by most cattle producers. However, are EPDs reliable for small-scale commercial producers? The hypothesis stated that the differences in the projected Birth Weights (BW) and Weaning Weights (WW) will be seen in the offspring's actual performance. All data was collected from Wagon Wheel Ranch's Angus Bull Sale Catalog from 2022-2023. Each sire's progeny's actual data was compared to that of their EPDs. Each progeny was also compared to that of the other sires, resulting in 523 unique comparisons. These two processes were utilized to find how far the progeny fell to the average, and how accurate those EPDs were.

The hypothesis was inconclusive. The 2022 season had a 75% BW accuracy and a 36% WW accuracy. In 2023 there was a 47% BW accuracy and a 41% WW accuracy rate. It was also determined that four out of six sires made the average BW in 2023 and three out of six sires made WW in 2022. Three of six sires made both BWs and WWs in 2023.

*I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.*

Finalist's Signature:

*Maggie Anderson*

Date: *3/1/24*

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.