Comparison of the Economic Value of Hereford Sired Herds vs. Angus Sired Herds on Long Run Economics. A Simulation based on performance data provided by the Hereford Association

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Assumptions

The model used to determine the expected results included the following notable assumptions:

1. A 10-year model was developed incorporating the effects of the cattle cycle on returns to the enterprise cattle sales, and fluctuating input prices. This model was then used to compare the impacts of the Hereford sired group versus the Angus sired group.

2. Herd sizes were allowed to fluctuate by keeping replacement percentages constant between the Hereford and Angus economic models. Extra females that are born from higher pregnancy rate groups are assumed to be used to grow the herd; extra males create more cash flow, which allows the benefits of the higher pregnancy rates to build on itself economically as the herd grows. This will also act against a herd with lower pregnancy rates.

3. The model divides the female and male animals into classes (Mature cows, 2nd calf heifers, bulls, etc.) with costs for the feed for each class allocated according to diets developed by nutritionists at the University of Missouri.

4. Input prices for feedstuffs were based on FAPRI estimates of indexes of prices paid and received by farmers in their 2009 farm program baseline book forecasting the next 10 years.

5. Annual and monthly budgets were created over the 10 year period and connected from one year to the next to show how the performance differences between the Hereford and Angus groups have impact over time.

6. Animal prices were estimated from University of Missouri and FAPRI long-term forecasts over the same 10-year period.

7. Performance measures such as death loss, pull rates, etc. where held constant between the two groups with the exception of those reported differences in the performance study (Birth Weight, Weaning Weight, Carcass Weight, Marbling, Carcass Fat, Carcass REA, Feed Conversion, ADG, and Intake).

8. Sales of all animals were assumed to occur in the same pattern between the Hereford and Angus sire groups, however, one group may have more or less animals to sell based on the long run production of calves and herd growth. This will have an effect on the economic comparison.

9. A 10-year monthly and annual cash flow model was developed in which interest and other costs were allowed to reveal how they impact the economic model based on differences in the variables mentioned above and herd size variations.

10. A present value analysis was completed to show the net benefits to a producer using the Hereford Sire model vs. The Angus Sire model tested in the animal performance study and modeled in this economic analysis.

Results

Two simulated cattle operations were compared economically based on the performance data from the study and following the primary assumptions outlined above yielding the following major economic conclusions:

1. The operation using Hereford sires returned an average of $514 net present value for each cow in the herd. (this is a net per cow for the whole period not for each year, i.e. an operation that had 100 cows and used the Hereford sires over a 10 year cycle would have a greater one time net present value on their operation of $51,400.)

2. The average rate of return on assets between the Hereford sire group and the Angus group was 5.77% vs. 2.27% over the 10-year period.

3. The average working capital for the operation was $334,484 for the Hereford group compared to $262,529 for the Angus group. This difference of an average $71,954 a year is a measure of current working capital (short term cash flow) available for operations (i.e. not profits). However, this is an important number because when a herd generates more working capital there is less pressure on the farm for short-term cash flow needs and less need to turn to financing.

4. Holding all cull rates and other factors mentioned above constant between the two groups, the Hereford operation would have 20% more cows in the herd than the Angus group after 10 years. This increase in herd size elevates the advantages of a greater pregnancy rate and makes the returns to the benefits accrued to the Hereford group grow even faster (as the herd size grows internally the benefits accrue even faster) than the Angus group over time.