

Beth Lenz
Calving Under Pressure

This experiment's purpose was to determine if a correlation exists between barometric pressure and the number of calves born, or if a correlation exists between significant changes in barometric pressure and the number of calves born. The hypothesis stated that a significant change in barometric pressure will increase a producer's calving rate, but barometric pressure would not correlate to the number of calves born. To obtain experimental data, a letter was sent to 30 beef producers requesting calving records, breeding records, and location. A total of 1792 calving dates were used as data points in this mathematical analysis. Barometric pressure for each calving day was found at www.wunderground.com, a website with National Weather Service records. The barometric pressure difference over 24 hours was calculated. The percent of the calf crop born at a specific pressure or pressure difference was found. In order to exclude outliers from the results, a Standard Normal Distribution was applied. The Standard Normal Distribution and the percent calf crop eliminated some variations that gestation length and reproductive cycles create. Scatter plots of data from all of the calves in a herd, and the calves born within the standard normal distribution in a herd were made, and a linear regression was calculated for each graph. The R-squared value was found. The highest R-value was 0.1279. Since this number is close to zero, the hypothesis that changes in pressure increase calving rates is rejected. No correlations were found between barometric pressure levels, accepting the second hypothesis.