

## **Odds Ratio and Probability of Conception of Holstein Friesian Dairy Cows in the Kingdom of Saudi Arabia**

A. K. A. Ali, A. A. ALEssa, M. A. Alshaikh, R. S. Aljumaah, A. A. Al-Haidary, M. S. Alkraidees

Logistic Regression Analysis was used to compute the odds ratio (OR) and probability of conception of Holstein dairy cows of AL-MARAIE company. Data consisted of 103,778 reproductive records collected from three farms in the central region in the Kingdom of Saudi Arabia. Records were classified according to lactation number, season of calving and milk level. At first lactation, OR of first service was 0.63 of other services and probability of pregnancy from first services was 0.39. Odds ratio increased to 1.72 at fourth lactation or probability of conception reached 0.63. The probability of conception increased from 0.39 for cows inseminated at first services to 0.75 at fifth service insemination. Odds ratio of cows calving in winter were higher than those calving in summer. Odds ratio of conception of low producing cows is about twice as likely to occur from first service as from other services. However, OR of conception of high producing cows was higher than one (probability=0.56) from first service and increased to 1.63 (probability=0.65) from third service. Odds ratio was in favor of the right uterus horn where probability of conception from first service was slightly greater than 50% in first and second lactations and less than 50% in favor of left horn in later lactations.

**Key Words :** Conception, Odd Ratio, Holstein Cattle, Logistic Regression