

**W148 Effect of age at first calving on milk production and days open in first-parity Iranian Holstein dairy cows.** A. Heravi Mous-savi\*, M. Danesh Mesgaran, and R. Noorbakhsh, *Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran.*

Age at first calving (AFC) is one of the important factors contributing to economic return and is determined partially by farmer policy. The aim of this study was to evaluate the effect of age at first calving on milk production and days open in first-parity Iranian Holstein dairy cows. Calving data were collected during 1996 until 2006 in seven large commercial Holstein farms. During the period the median number of cows in the study herds was 500. Farms were located in northeastern Iran and were enrolled in the official milk-recording scheme. Each cow was characterized by demographic data (birth date, sire, first calving date), production data (cumulative first 60 and 200 days milk productions), and reproduction data (days open). The dependent variables analyzed were the cumulative first 60 and 200 days milk production, and days open. The AFC was included in the model with 23 levels (from 17 to 40 mo, one per month). Data were analyzed using General Linear Models using the statistical software package JMP. Age at calving averaged  $27.23 \pm 3.37$  month. The median was 26 mo and 25% and 75% quartiles were 25 and 28 mo, respectively. Its distribution showed almost a bell shape. Age at first calving decreased from 1996 to 2006 ( $P < 0.01$ ). The cumulative first 60 and 200 days milk production was impacted by AFC ( $P < 0.001$ ) and the milk yields were increased in greater AFC. Days open was similar among different levels of AFC. The results of this study demonstrate that milk yields increased with increasing AFC, but the AFC had no apparent impact on the interval from calving to conception. The

results also demonstrated that mean AFC is higher than the optimum age at first calving and can be decreased by 4 months.

**Key Words:** Dairy Cows, Age at First Calving, Days Open

**W149 Changes in muscle proteome of dairy cattle with onset of lactation.** P. J. Tyler\*, K. A. Cummins, D. M. Carpenter, and R. Sabharwal, *Auburn University, Auburn, AL.*

An experiment was conducted to evaluate changes in the muscle proteome of dairy cows before and after the onset of lactation. Samples ( $n = 3$  cows) of semi-tendinosus muscle were taken under local anesthesia either 7 d before expected calving date (mean 7.2 d) or 10 d after calving. Samples were subjected to two-dimensional gel electrophoresis in triplicate and stained with Sypro Ruby (Bio-Rad). Gel images were captured on a Typhoon 9410 (Amersham, Piscataway, NJ) and were processed with PD Quest software (Bio-Rad, version 8.0.1) for spot detection and expression quantification. The data were imported into the SAS statistical software (Version 9.1) for statistical differential protein expression analysis. There were a total of 613 spots detected in the union from all gels. Of these, 206 spots were matched in all 9 pre-calving gels, 251 matched in all 9 post-calving gels and 183 were matched across all 18 gels. Of the 183 commonly expressed spots, twenty-eight showed statistically significant ( $P < 0.05$ ) differential expression, with 9 down-regulated and 19 up-regulated between pre- and post-calving. Significant changes occur in the muscle proteome of lactating dairy cattle with the onset of lactation.

**Key Words:** Parturition, Muscle, Proteome