

(LH) and High-WEI, High-1WK (HH). Females were individually housed, blocked by body condition score (1 = thin, 2 = ideal, 3 = fat), parity group (P1, P2 and P3+), and randomly assigned to dietary treatments. The average body condition was 2.1 ± 0.52 and average parity was 2.8 ± 1.46 . Sows were fed corn-soybean meal based diets with 3.4 Mcal ME/kg and 1.3% SID lys during the WEI and 3.2 Mcal ME/kg and 0.78% SID lys during gestation. All sows were fed 2 kg/d of the gestation diet after the first week of gestation until farrowing. Data were analyzed using generalized linear mixed models with pen as the experimental unit and week as random effect. Born alive weight index was calculated as farrowing rate \times total born \times born alive rate $\times 100 \times$ individual born alive birth weight. There was no parity or body condition score interaction with dietary treatments. There was an increase ($P = 0.05$) in farrowing rate (93.3 vs. 88.3%, SEM = 2.78%) when sows were fed high vs. low feeding levels during the WEI. There were no evidences for differences between dietary treatments ($P > 0.24$) in total piglet born or rate of mummified fetuses. There was a WEI \times 1WK ($P = 0.04$) interaction for stillborns where increasing feeding levels at WEI and 1WK increased stillborn rate (HH: 7.6 vs. HL: 5.0%, SEM = 0.93%). Consequently, there was a marginally significant ($P = 0.06$) interaction for born alive, where HH had reduced born alive rate vs. HL (89.9 vs. 92.4%, SEM = 0.85%). There was an increase ($P = 0.03$) in born alive weight index when high feeding levels were fed during WEI compared to low. Furthermore, there was a marginally significant ($P < 0.10$) interaction for individual piglet birth weight of total born, born alive, and stillborns, where HH had lower birth weight compared to HL. In conclusion, feeding 5.2 kg/d during wean-to-estrus interval increased farrowing rate by 5% points; however, high feeding levels in the first week of gestation increased stillborn rate and reduced piglet birth weight.

Key Words: early gestation, feed intake, wean-to-estrus
doi: 10.2527/asasmw.2017.12.162

163 Predicting post-farrow maternal weight for primiparous and multiparous sows. L. L. Thomas*, S. S. Dritz, R. D. Goodband, M. D. Tokach, J. M. DeRouchey, J. C. Woodworth, *Kansas State University, Manhattan.*

Maternal weight at the end of gestation is needed to calculate maternal and fetal weight gains throughout gestation. However, maternal weight after farrowing is difficult to obtain in commercial farms. Therefore, equations were developed from an analysis of 150 females (Line 1050, PIC, Hendersonville, TN) to predict the weight of conceptus by difference of pre- and post-farrowing weight change in multi-parity sows. Females were individually weighed as they were moved into the farrowing house at d 110 to 112 of gestation and again at 12 to 24 h after farrowing. Sows were provided with ad libitum access to feed in the farrowing house. Data were divided into

4 parity groups: 1, 2, 3, and 4+. Three predictor variables were evaluated within each parity group: pre-farrow weight, total born, and difference in days between the pre- and post-farrow weights. Prediction equations were then developed using models with significant terms based on the Bayesian Information Criterion. The optimum equations to predict maternal BW were similar for all parities except for the intercept (b) and can be described as: Post-farrow maternal BW (kg) = $b + (0.897 \times \text{pre-farrow BW, kg}) - (0.508 \times \text{total born, n}) + (3.123 \times \text{days pre to post-farrow, d})$; where the intercept (b) for parities 1, 2, 3, and 4+ were -2.70, 2.34, 5.41, and 14.69, respectively. The prediction equations were then used to estimate post-farrow maternal BW using 332 mixed parity sows (PIC 1050). Pre-farrow weights were taken on d 113 of gestation and maternal BW were taken within 24 h of farrowing. Feed intake was limited to 2.7 kg/d prior to farrowing. On average, the predicted post-farrow maternal BW was overestimated by 1.5 kg of the actual ($P = 0.002$). Although the difference between the actual and estimated post-farrow maternal BW was significant this difference is negligible when partitioning maternal and fetal weight gains throughout gestation. When applying this difference (1.5 kg) to sow gestation models, the impact on daily maintenance requirement is a difference of only 32 kcal. We hypothesize the difference in feed allowance in the farrowing house prior to farrowing may have contributed to the overestimation of post-farrow maternal BW. The post-farrow BW prediction equation is a tool that can be applied to sow gestation models for an understanding of the females' maternal and fetal weight gains throughout gestation.

Key Words: maternal weight, post-farrow, sows
doi: 10.2527/asasmw.2017.12.163

164 Effects of different feeding levels during three short periods of gestation on gilt and litter performance, nutrient digestibility, and energy homeostasis.

P. Ren^{1,*}, X. Yang¹, S. Cui^{2,3}, J. Kim¹, D. Menon¹, D. Pangeni¹, H. Manu¹, A. Tekeste¹, S. K. Baidoo¹,
¹*Southern Research and Outreach Center, University of Minnesota, Waseca*, ²*West Central Research and Outreach Center, University of Minnesota, Morris*,
³*Northeast Agricultural University, Harbin, China.*

The present study investigated the effects of different feeding levels during 3 short periods of gestation on gilt and litter performance, apparent total tract digestibility (ATTD) of energy and nutrients, and energy homeostasis. A total of 18 gilts were allotted to 1 of 3 dietary treatments using a completely randomized design. All gilts were fed one common corn-soybean meal-based diet with the amount being $1.0 \times$ maintenance energy intake ($100 \times \text{body weight (BW)}^{0.75} \text{ kcal ME/d}$) throughout gestation except 3 periods of 7 d when dietary treatments were imposed on d 27, 55, and 83 of gestation. During the 3 short periods, sows were fed 1 of 3 different feeding levels: 0.5, 1.0, and $2.0 \times$ maintenance energy level (0.5M, 1.0M,