increases piglet consumption of colostrum and IgA concentrations in colostrum remain to be determined.

Key Words: colostrum, sows, mannan oligosaccharides

235 Comparison of estimated body composition of pregnant sows using isotope dilution technique or using live weight and backfat thickness. P. J. L. Ramaekers*[1], M. G. H. Veldhorst[2], P. K. Theil[3], and W. J. J. Gerrits[2], [1]*Nutreco Netherlands BV, Boxmeer, the Netherlands*, [2]*Wageningen University and Research Centre, Wageningen, the Netherlands*, [3]*Danish Institute of Agriculture Sciences, Tjele, Denmark*.

In total, 24 Hypor sows were used to compare body composition predicted by live weight (LW) and backfat thickness (BF) with that determined by deuterium oxide (D_2O) dilution technique. On d 17 and 57 of gestation, sows received 0.25 g D_2O per kg/LW via the drinking water after 16 h without access to water and feed. Five hours after D_2O supply, blood samples were taken from each sow. LW and BF were measured before D_2O supply and after the 5-h blood sampling. Starting on d 17, sows were assigned to one of two feeding levels based on parity and BF (<17 mm and ≥17 mm). D_2O in serum samples was analysed according to Brand et al. (1996) and body water mass (WM_D) was calculated according Theil et al. (2002). Equations for Yorkshire x Landrace gilts from Rozeboom et al. (1994) were used to calculated body protein mass (PM_D) from body water mass (WM_D). Equations of Dourmad et al. (1997) were used to calculate body water (WM_B) and protein mass (PM_B) from LW and BF. WM and PM were estimated higher using LW and BF equations than with the D_2O equations (Table 1). Correlations between WM_B and WM_D (0.99) and PM_B and PM_D (0.99) were high. Changes in WM and PM between d 17 and d 57were lower or similarly estimated with LW and BF compared to D_2O technique (Table 1). Correlations between gained WM_B and WM_D and gained PM_B and PM_D were 0.84 and 0.83, respectively. Although, both methods estimate WM and PM indirectly, our results indicate that the equations of Dourmad et al. (1997) are still valid to estimate WM and PM in modern genotype sows.

Table 1. LW, BF, and water and protein mass and gain estimated from LW and BF or D_2O

		Mean	SD	min	max
Live weight	kg	200	15	160	250
Backfat thickness	mm	17	2	12	20
Water mass LW and BF	kg	103	16	77	133
Water mass D_2O	kg	101	18	71	135
Protein mass LW and BF	kg	27.5	5.0	20.1	35.1
Protein mass D_2O	kg	25.8	4.2	19.2	32.3
Live weight gain	kg	23	7	12	36
Backfat gain	mm	1.6	1.8	−1.5	5.5
Gain water mass LW and BF	kg	11.4	3.7	5.7	17.9
Gain water mass D_2O	kg	13.8	5.2	3.8	21.8
Gain protein mass LW and BF	kg	3.6	1.2	1.7	5.8
Gain protein mass D_2O	kg	3.6	1.4	1.0	5.6

Key Words: pigs, body composition, isotope dilution technique

236 Effects of increasing feeding level during late gestation on sow and litter performance. N. W. Shelton*[1], J. M. DeRouchey[1], C. R. Neill[2], M. D. Tokach[1], S. S. Dritz[1], R. D. Goodband[1], and J. L. Nelssen[1], [1]*Kansas State University, Manhattan*, [2]*PIC, Hendersonville, TN*.

A total of 108 gilts and sows (PIC 1050) and their litters were used over 2 parities to determine the effect of increasing late gestation feeding level on sow and litter performance. Treatments were a 2×2 factorial with main effects of feeding level (0 or 0.9 kg of extra feed from d 90 to farrowing) and parity group (gilts or sows). Initial gestation feed levels were based on BW and backfat thickness of a diet containing 3,267 kcal ME/kg and 0.57 % SID Lys. The trial was conducted for 2 successive parities, with females remaining on the same treatment for both parities. For the first parity, increasing feed increased ($P < 0.001$) BW gain from d 90 to 112 (20.5 vs 15.3 kg). Lactation ADFI decreased in gilts (4.5 vs 5.3 kg) and increased in sows (6.10 vs 5.8 kg) with increasing late gestation feed (feeding level × parity interaction $P < 0.004$). Increasing feed in late gestation increased liveborn piglet birth weight in gilts (1.5 vs 1.4 kg), but decreased piglet birth weight in sows (1.4 vs 1.5 kg; feeding level × parity interaction $P < 0.04$). Conception rate after weaning increased in gilts (95 vs 77%), but decreased in sows (88 vs 97%) receiving additional feed in late gestation (feeding level × parity interaction $P < 0.03$). Litter size, litter growth rate, and wean to estrus were not affected ($P > 0.10$) by increasing feeding level. During the subsequent parity, increasing feed level increased lactation backfat and BW loss in parity 2 sows (1.9 vs 0.5 mm; 14.3 vs 5.3 kg), but decreased lactation backfat and BW loss in parity 3 and older sows (0.1 vs 1.2 mm; 5.7 vs 7.3 kg; feeding level × parity interactions $P < 0.02$). Additional feed in late gestation increased liveborn birth weight in parity 2 sows (1.6 vs 1.4 kg) with similar birth weights in parity 3 and older sows (1.4 vs 1.4 kg; feeding level × parity interaction $P < 0.01$). Providing additional feed in late gestation increased ($P<0.02$) piglet weaning weight (6.4 vs 6.0 kg). Overall, varied responses were found for increased late gestation feeding level in gilts and sows.

Key Words: gestation feeding, lactation, sow