

PSIII-7 Evaluating sow colostrum somatic cell count as an indicator for colostrum composition or litter characteristics. Ryan T. Maurer¹, Kiah M. Gourley¹, Theresa J. Rathbun¹, Jason C. Woodworth², Joel M. DeRouchey¹, Mike D. Tokach¹, Steve S. Dritz¹, Robert D. Goodband¹, ¹*Kansas State University*, ²*Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506*

Sow colostrum is essential during early piglet life to provide passive immunity via immunoglobulins and leukocytes. The somatic cell population in colostrum and milk consists of leukocytes and epithelial cells. Somatic cell count (SCC) of milk is commonly used as an indicator of cow milk quality and health status, but not commonly measured in lactating gilts or sows. An experiment was conducted to evaluate the relationship between colostrum SCC and colostrum composition or litter performance. A total of 194 frozen (-20°C) colostrum samples from Large White × Landrace females were evaluated for SCC. Cells were pelleted and washed twice by centrifugation (10 min. at 400 x g; 4°C) in Phosphate Buffered Saline (PBS; pH 7.2, LifeTechnologies). The resulting cell sample was labelled with a nuclear dye (LDS751) and cells counted via micro-capillary bench-top flow cytometer (Guava EasyCyte Plus, Millipore). Final SCC (cells/mL) was calculated by dividing sample cell count (cells/sample) by original sample volume (mL/sample). Data was analyzed for relationship between SCC and response variables using Pearson correlation. A pairwise comparison was used to evaluate SCC by parity category (gilts vs. sows). Results were considered significant at P < 0.05. Final somatic cell counts ranged from 5.8 × 10⁴ to 2.9 × 10⁶ cells/mL. Sows had decreased (P = 0.033) SCC compared to gilts (3.0 × 10⁵ vs. 3.7 × 10⁵). There was no evidence for a relationship (P > 0.05) between SCC and piglet weight at 24h or weaning, 24h litter gain, 24h or pre-wean mortality, sow backfat or body weight. Colostrum total solids, protein, lactose, and immunoglobulin G concentration showed no evidence for relationship (P > 0.05) to SCC. Colostrum fat showed a weak positive correlation (P = 0.018, R = 0.18) with SCC. In conclusion, colostrum SCC is lower in sows than gilts, but does not appear to correlate to colostrum composition or litter performance.

Table 1. Pearson correlation coefficients of variables to somatic cell count¹

Response	R	P-value
Immunoglobulin G, mg/mL	-0.05	0.540
Pig weight at 24 h, g	-0.06	0.440
Litter gain in 24 h, kg	0.07	0.360
Mortality to 24 h, %	0.02	0.870
Mortality to wean, %	0.10	0.310
Colostrum fat, %	0.18	0.018
Colostrum total solids, %	0.07	0.340
Colostrum protein, %	-0.02	0.770
Colostrum lactose, %	-0.03	0.690
Colostrum yield, kg/sow	0.02	0.800
Colostrum intake, g/pig	-0.04	0.560
Fall behind pigs, %	0.01	0.850
Sow backfat d 113, mm	-0.04	0.570
Sow body weight d 113, kg	-0.14	0.054

¹A total of 194 samples were included in analysis for somatic cell count

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