

# Colostrum Quality: Effect of Parity, Volume and Collection Time

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Providing adequate amount of immunoglobulin G (IgG) during the first hours after birth is vital to protect the calf against disease. The concentration of IgG in bovine colostrum can be estimated by using a Brix refractometer. A Brix value (BV) of 22% is equivalent to an IgG concentration of 50 g/L (i.e. good quality). We examined the effect of parity, volume and collection time on colostrum quality assessed by a Brix refractometer (ATAGO® Tokyo, Japan). Colostrum samples were collected from 117 Holstein cows [39, 40, and 38 first (FP), second (SP), and third or greater (MP) parity cows, respectively] on average at 4 (Sample 1) and 16 (Sample 2) hours after calving. The total volume of the colostrum was recorded after each collection. Data were analyzed with PROC MIXED, GENMOD and CORR in SAS. Mean BV was affected by parity and collection time but was not associated with volume. Overall, older parity cows produced colostrum with higher BV ( $P < 0.01$ ; MP:  $23.4 \pm 0.6$ , SP:  $21.7 \pm 0.5$  and FP:  $20.4 \pm 0.5\%$ ). The mean BV for sample 1 was higher compared to sample 2 ( $P < 0.01$ ;  $25.1 \pm 0.4$  vs.  $18.6 \pm 0.4\%$ ). The proportion of cows that produced colostrum with a BV  $\geq 22\%$  in the first collection did not differ among parities ( $P > 0.05$ ; 71.4, 87.5 and 86.4% for FP, SP and MP, respectively). However, the proportion of cows that produced colostrum with a BV  $\geq 22\%$  in the second collection was greater in older parity cows ( $P < 0.03$ ; MP: 35.5%, SP: 26.5%, and FP: 10.8%). The total volume of colostrum collected tended to be higher ( $P = 0.08$ ) in MP and SP than in FP ( $5.4 \pm 0.4$  and  $5.5 \pm 0.4$  vs.  $4.3 \pm 0.4$  L). There were positive correlations between first and second colostrum sample for both volume and Brix values ( $R^2 = 0.53$ ,  $P < 0.01$ ;  $R^2 = 0.54$ ,  $P < 0.01$ ; respectively).

**Take Home Message:** In general the colostrum quality ( $\geq 50$  g/L IgG) of cows from a well-managed dairy herd was high. Regardless of parity, over 71% of the first colostrum samples were of good quality. Up to 35% of older parity cows produced a second colostrum sample of good quality. Colostrum quality was affected by the time of collection but not by the volume.

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