

Assessing Variability in Dairy Heifer Body Weights

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Raising healthy young stock to be productive cows is crucial to a dairy farm, but indicators of successful heifer rearing, including weight gains, are rarely measured. Our aim was to describe the variation in growth of Holstein heifers reared on dairy farms in the lower Fraser Valley region of British Columbia. Data were collected by the same individual on 33 farms, all using the Dairy Herd Improvement (DHI) recording system and each with a minimum milking herd of 100 cows. Farms were visited between June 2010 and October 2010. Heart girth circumference was measured for all heifers aged 12 to 17 months ($n= 560$) and these values were converted to estimate body weight (BW). Birth dates were also recorded. Data were analyzed through a simple linear regression analysis resulting in a line equation of $BW \text{ (kg)} = 112.9 + 5.1 \cdot (\text{age in weeks})$ ($R^2=0.35$). Residuals derived from this regression were averaged across heifers within each farm; these farm averages ranged from -53.8 to 71.5 kg. We tested the effects of a range of farm level descriptors (including weaning method, time between weaning and moving to a new pen, size of the heifer group, frequency of regrouping heifers, and times per day heifers were provided fresh feed) but only one variable was able to account for among-farm variation in residual weights, and we tested the average weight gain during the pre-weaning phase (i.e., calves 0 to 2 months of age) such that residual gains were measured as described above for heifers. Residual weights of heifers increased with gains of the pre-weaned calves (line equation: $\text{residual heifer BW (kg)} = -1.50 + 2.99 \cdot (\text{residual calf BW (kg)})$; $R^2=0.39$).

These results show considerable among-farm variation in heifer weight gains, indicating that some farms are doing well while others could improve performance. Farms capable of rearing faster growing heifers were also rearing faster growing calves, suggesting that management of milk-fed calves is especially important.