

NAHMS 2018 calf survey reveals issues with postweaning transition

THE National Animal Health Monitoring System (NAHMS) has conducted nationwide dairy industry surveys and published the results most recently in 2002, 2007 and 2014, with some lag time between the years in which data were collected and when they were published. In addition, NAHMS did several separate calf surveys in 1991 and 1993.

Key data from these five studies were compiled in a table and discussed (*Feedstuffs*, Sept. 5, 2016). The last two NAHMS surveys — in 2007 and 2014 — have incorporated more questions related to calves and heifers.

More recently, a separate heifer calf survey was done and published in a sequence of six articles in the October 2018 *Journal of Dairy Science*. This column will extract and analyze some of the data primarily related to feeding and management of calves from that survey.

The survey of 104 dairy operations in 13 U.S. states was conducted from March 2014 to December 2015 (Urie et al., 2018a). There were 2,545 heifer calves, of which 89% were Holsteins, 75% were unassisted calvings and 97% were singleton births.

Herds surveyed were categorized as: “small,” with 30-99 cows, which accounted for 21 operations with 14% of all calves; “medium,” with 100-499 cows, comprising 33 operations with 27% of all calves, and “large,” with 500-plus cows, comprising 50 operations with 59% of all calves. Of the surveyed operations, 75% were from the East region.

After birth, 20% of calves were provided with pooled colostrum, less than 7% of calves were provided with heated colostrum, 22% of calves suckled colostrum from their dam, 24% of calves were fed colostrum after Brix refractometer readings, 77% of calves received more than 50 g of immunoglobulin G (IgG) per liter of colostrum, average time after calving for first colostrum fed was 2.8 hours, the average amount of colostrum fed at the first feeding was 2.9 liters (with 4.5 liters given within the first 24 hours), average serum total protein was 6.0 g/dL, there was 90% passive transfer and 81% of calves were bottle fed versus 35% that were esophageal tubed and 11% that were both.

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Bottom Line

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Mean colostrum IgG (Shivley et al., 2018) was 74.4 g per liter, 77% of colostrum had more than 50 g of IgG per liter and colostrum IgG was 72.6 g per liter when the temperature-humidity index was less than 40 (cold stress) and 64.2 g when the index was greater than 70 (heat stress). Of all calves, 12% received less than 10 g of IgG per liter, but the authors recommended a minimum of 15 g of IgG per liter, which 73% calves received.

Colostrum IgG levels were similar for the first, second and unknown lactations but were about 10% greater for the third lactation. When calves received heat-treated colostrum (only 6%), they had serum levels of 24.1 g versus 20.5 g of IgG per liter. Colostrum was fed to 63% of calves by bottle and 10% by esophageal tube, while 24% of calves were allowed to suckle from their dam.

Of all calves (Urie et al., 2018a), 87% were individually housed, and 67% were bedded with straw/hay, 31% with shavings/woodchips and 5% with sand. At an average of 28 days of age, calves were dehorned, they were first fed water beginning at eight days, first fed starter at five days and first fed hay at 27 days. These numbers are better than for the 2007 and 2014 NAHMS surveys but still reflect the fact that dairy farmers are waiting too long to begin feeding water and starter, but then they cannot wait to begin feeding hay too soon.

The average age at weaning was 65 days, and 40% of calves were fed whole or waste milk, 35% were fed milk replacer and 25% were fed both. Of all calves, 31% were fed pasteurized whole

or waste milk, 39% were bottle fed, 17% were bucket fed, 5% were bar fed and 3% were robotically fed. Feeding frequency was 12% for once daily, 91% for twice daily, 18% for three times daily and 12% for robotic/ad libitum feeding.

Milk replacers fed had primarily 22% protein with 20% fat. Calves were fed 0.29 lb. of solids milk replacer per feeding and averaged 2.5 liters (2.64 quarts) per feeding for 65 days, with 350 liters (370 quarts) total fed preweaning and an average of 5.6 liters (5.9 quarts) fed daily (Urie et al., 2018a). The average protein of the starter fed was 19.8%.

Weaning was done based on starter intake for 50% of operations surveyed, while 98% used age to weaning, and 29% frankly acknowledged that lack of space was the primary factor in deciding when to wean their calves. Given that few operations actually measure starter intake, how can that many operations say that is what they used to determine when calves are to be weaned?

Of all calves (Urie et al., 2018b), 34% had at least one disease issue, and 6% had more than one issue. Digestive issues occurred more in December, February and then April, while respiratory problems occurred more in January, March and then April. Average mortality was 5% and was greater with lower birth weight, lower serum immunoglobulins and fat intake of fewer than 150 g per day. With any disease, calves had 4.6 times greater odds of death than with no disease.

During the study, calves were measured for bodyweight approximately every two weeks, and this was done using height/weight tapes, not scale weights. However, birth weights were measured by scale, hoof circumference or heart girth circumference.

The Dairy Calf & Heifer Assn. Gold Standard is to double birth weight at

Growth parameters in Urie et al. (2018) survey

Item	Holsteins	Jerseys
Number of calves	2,273	114
Birth weight, lb.	94.7	77.3
Weaning weight, lb.	201.3	154.4
Daily gain, lb.	1.61	1.12
90-day weight, lb.	229.0	189.8
Daily gain postweaning, lb.	1.32	1.69
Birth hip height, in.	32.6	29.8
Weaning hip height, in.	37.5	33.7
Height increase, in./day	0.071	0.057
90-day hip height, in.	38.6	35.4
Height increase, in./month	2.01	1.87

the end of two months of age. The closest age measurement to two months in this survey was weaning age at 65 days. Both Holsteins and Jersey heifer calves reached that double-birth weight goal. However, daily gain for Holsteins decreased from 1.61 lb. preweaning to 1.32 lb. postweaning, which indicates a major issue with the weaning transition period after full weaning. Jerseys did not show the same falloff, but there were only 114 Jerseys versus 2,273 Holsteins in this database (Table).

There was a similar falloff for Holstein hip heights postweaning, but again, not for Jerseys. As a reference point, hip heights are about 2 in. greater than wither heights. As I found from a five-year Holstein database published in 1997 (Kertz et al.) and an evaluation of growth patterns published in 1998 (Kertz et al.), the height increase is very critical for the overall growth of Holstein heifers.

Regarding the pattern for height increase, from birth to pre-first-calving height, 50% should occur in the first six months, 25% in the next six months and only 25% in the last 12 months. Since this height increase is biologically controlled, primarily through growth hormone, and

is age related just as in humans, as far as I have been able to determine, there is no compensatory increase in height at a later age if not made within these age periods. During the first six months, height should increase about 2 in. monthly at the withers. It is sort of a make-it-then-or-lose-it situation.

THESE data indicate that Holstein heifer calves were not making appropriate weight and height increases postweaning, most likely due to a poor postweaning transition program.

The Bottom Line

This survey provides invaluable U.S. data to illustrate how heifer calves are doing in their first 90 days. It also spotlights poorer postweaning weight and height increases for Holsteins. This should not be occurring and indicates poor postweaning transition programs.

References

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