

Feeding and Management of Beef on Dairy Calves for Optimal Performance

Current concepts in calf and heifer feeding and the NASEM requirements

James K. Drackley

University of Illinois Urbana-Champaign

drackley@illinois.edu

While data are beginning to accumulate about the growth and nutritional needs of beef-on-dairy calves, at present we know very little specific information about their nutritional requirements. We can use the NASEM 2021 calf chapter to provide background on which to assess predicted performance and factors affecting growth.

Beef feeders report differences of growth between beef-on-dairy calves and either straight-bred beef calves or Holstein calves, and a greater occurrence of liver abscesses. We do not know whether these are effects of genetics or the generally different management between beef calves and dairy calves. Male dairy calves are often colostrum deprived and are often transported in the first few days of life, in contrast to beef calves. Dairy calves are fed limited amounts of milk or milk replacer, whereas beef calves feed to appetite. Dairy calves are weaned at 4 to 8 wk, whereas even “early weaned” beef calves receive milk for at least 80 days. Dairy calves are weaned on to a high-energy starter feed, while beef calves generally consume grass and have a longer time for rumen development before weaning.

The NASEM 2021 calf chapter is an extensive revision over the NRC 2001. Requirements are based on empty body weight calculations, which removes the influence of varying amounts of gut fill. New equations were developed to predict starter intake, both in temperate conditions and in hot climates. The energy requirements have been extensively revised, using data from Holstein and Jersey calves that were slaughtered to determine body composition and the composition of empty body gain. Feed energy values are calculated differently. A new metabolizable protein system was adopted. Mineral requirements (or adequate intakes) are calculated using a factorial approach where possible. Requirements for vitamins D and E have been increased. The text discussion of various nutritional and management topics is vastly expanded.

Although data from beef-on-dairy calves are not available currently, there is every reason to expect that the new NASEM 2021 model will do a reasonable job of predicting growth and body composition of such calves up to 220 – 250 lb body weight. As published data accumulate, there will be an opportunity to more rigorously evaluate the NASEM model for beef-on-dairy calves.