



EXTENSION

BEEF CATTLE RESEARCH UPDATE

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Assessment of Weaning Management on Growth Performance and Health in Southeastern Beef Calves

Beef calves are traditionally weaned by abrupt remote separation from their dams. Weaning is one of the most stressful events in a calf's life having a major impact on both calf short- and long-term health, growth performance and economic returns. Minimizing weaning stress should improve calf health and weight gain. Therefore, alternative weaning strategies aim to reduce stress at weaning. Low-stress weaning strategies divide the weaning process into two stages: 1) physical separation from dams and 2) separation from milk as a nutritional source. Two low-stress strategies that have been utilized in the beef industry include fence-line weaning and the application of anti-suckling devices. Fence-line weaning involves the separation of calves from their dams via a fence such that they reside in adjacent pens or pastures allowing social interaction while preventing suckling (nutritional separation). Anti-suckling devices are inserted into a calf's nose to prevent suckling but allow contact between the calf and the dam.

Recent Auburn University research assessed the effects of weaning management practices on beef calf performance and health before backgrounding.¹ A two-year study was conducted using 427 steer calves (216 calves in year 1, average body weight, BW = 655 lb; 213 calves in year 2, average BW = 642 lb) from three Auburn University research farms. These calves were randomly assigned based on weaning weight to one of three different weaning method groups for a 14-day observation period: abrupt weaning, fence-line, or nose-flap.

On day 0 of the study, all calves assigned to the abrupt weaning group traveled 3 hours to one central location. Calves in the fence-line and nose-flap groups traveled to the same location on day 14 of the study. The calves were weighed on day 0, day 14 and 24 hours following any travel event. Blood samples were also collected to determine haptoglobin concentrations surrounding the travels events and blood titers following vaccinations. Haptoglobin is considered a major acute phase protein that is released in response to infection or inflammation with a significant positive association with bovine respiratory disease in calves.^{2, 3} In contrast, haptoglobin is virtually undetectable in the blood of unstressed cattle.

These researchers reported that in both years of the study, fence-line weaned calves had the greatest average daily gain at 2.38 lb/day ($P < 0.0001$) and abruptly weaned calves had the least average daily gain, losing 0.33 lb/day during the 14-day observation period. Over both years of the study, the fence-line weaned calves gained more ($P = 0.0008$) than both nose-flap and abruptly weaned calves. In addition, abruptly weaned calves had greater blood concentrations of haptoglobin (0.084 mg/mL; $P < 0.0001$) than both the fence-line (0.023 mg/mL) and nose-flap weaned calves (0.020 mg/mL). These authors concluded that this data demonstrates how weaning management strategies may influence calf growth performance and the transition into the post-weaning period.

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- ¹ Justice, M. M., K. K. Mullenix, D. A. Tigue, P. Zessin, L. L. Dillard, S. P. Rodning and M. Chamorro. 2023. Assessment of Weaning Management on Growth Performance and Health in Southeastern Beef Calves. *J. Anim. Sci.* 101: 75-76 (Abstr.).
- ² Godson DL, M. Campos, S. K. Attah-Poku, M.J. Redmond, D.M. Cordeiro, M.S. Sethi, R. J. Harland, and L. A. Babiuk. 1996. Serum haptoglobin as an indicator of the acute phase response in bovine respiratory disease. *Vet. Immunol. Immunopathol.* 51:277–292.
- ³ Wolfger, B., Timsit, E., White, B.J. and Orsel, K., 2015. A systematic review of bovine respiratory disease diagnosis focused on diagnostic confirmation, early detection, and prediction of unfavorable outcomes in feedlot cattle. *Veterinary Clinics: Food Animal Practice* 31:351-365.

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