

Acclimating cattle: effects on stress and health

GA Dewell, DVM, MS, PhD¹ ; RD Dewell, DVM, MS² ; ST Millman, PhD¹ ; RL Parsons, MS¹ ; JF Coetzee, BVSc, Cert CHP, PhD, DACVCP, DACAW, DECAWSEL³ ; TH Noffsinger, DVM⁴ ; AK Johnson, PhD⁵ ;

¹*Veterinary Diagnostic & Production Animal Medicine, Iowa State University, Ames, IA, 50011*

²*Center for Food Security & Public Health, Iowa State University, Ames, IA, 50011*

³*Department of Anatomy & Physiology, Kansas State University, Manhattan, KS, 66506*

⁴*Production Animal Consultants, Oakley, KS, USA 67748*

⁵*Department of Animal Science, Iowa State University, Ames, IA, 50011*

⁶*Biomedical Sciences, Iowa State University, Ames, IA, 50011*

Introduction:

Cattle acclimation involves low stress handling to encourage cohesive herd formation within the home pen, moving the herd around the home pen, followed by guiding cattle through the processing facility. The objective of acclimation is to encourage herd behavior and familiarize cattle with experiences prior to husbandry and veterinary interventions. Our goal was to determine acclimation effects on health and stress, with the hypotheses that acclimated calves will have decreased bovine respiratory disease (BRD), slower exit time (ET) and lower cortisol (CORT) levels.

Materials and Methods:

Upon arrival to the feedlot, calves were systematically assigned to control (C) or acclimated (A) treatments by pen (C= 2,735 calves, 54 pens; A = 2,458 calves, 50 pens). For A calves, acclimation was performed once daily on 3 days over a 10-day period, twice prior to and once following initial processing; C calves received no acclimation. Exit time was measured on every calf at 4 time points: initial enrollment (D+1), approximately D+10, D+90 and D+180. Three sentinel calves were randomly selected from each pen for CORT measurements (A=162, C=150). A mixed model statistical analysis was used to assess differences between treatments, which included day and treatment interaction for CORT and the fixed effect of treatment.

Results:

Compared to C calves, A cattle demonstrated no difference in BRD incidence ($P>0.05$), had faster ET at D+10 ($A=0.94\pm 0.02s$, $C=1.00\pm 0.02s$; $P=0.04$) and lower CORT levels at D+90 ($A=31.63\pm 2.5$, $C=41.18\pm 2.7$; $P=0.01$ ng/ml).

Significance:

Acclimation resulted in lower CORT at D+90 and faster ET at D+10; but did not improve the BRD incidence.