Commingling of beef feeder calves from different sources results in biological and behavioral stressors. The objective of this study was to explore whether preferential relationships among beef feeder calf may influence social buffering that result in positive animal welfare, health and performance outcomes. Weaned calves (n=102) from 23 farms were randomly assigned to 17 pens, each comprised of 3 familiar (F) calves from the same farm and 3 unfamiliar (U) calves from 3 different source farms. We hypothesized that F calves would experience less stress than U calves during weekly handling events (D7, D14, D21, and D28 relative to feedyard arrival) and castration surgery (D0). Our analyses included calf cohort, handling chute, chutes visualizations, exit speed, and ADG. Models included a day by treatment interaction and cohort as a fixed effect. To date, 102 weaned bull calves enrolled (3F, 3U). Calves were included in the handling chute, chute visualizations, exit speed, and ADG. Models included the interaction of trial day by treatment interaction cohort and D0 as well as the interaction of day by treatment interaction cohort and D0 as fixed factors in the models. A Friedman test ranked calf chute exit time from the handling chute, hours spent lying in home pen, and number of vocalizations across trial days.

**Results**

- A significant day by treatment interaction was observed in ADG (p=0.01), on D+21 of the trial, F calves showed significantly higher ADG than U. [Table 1]
- F calves had a faster chute exit time than U calves (p=0.02) on D+21. [Table 2]
- F calves displayed fewer vocalizations at handling than U calves (p=0.01) on D+21. [Table 3]
- No effect of treatment on overall calf activity that included standing duration, number of steps or number of lying bouts (p=0.12).

**Discussion**

- We hypothesized that F calves, when exposed to castration and castration stress, would have superior performance outcomes as a result of social stress.
- Decreased ADG in all calves supported the hypothesis that castration represents a significant stressor.
- ADG differing between F and U calves within this period suggests that F calves show more resilience even without post mixing.
- 7 days post castration, F calves vocalized less than U calves, possibly correlating with decreased stress at handling.
- 7 days post castration, F calves had a faster chute exit speed than U calves, this may correlate with decreased pain, but could also correlate to more stress at handling.

**Conclusion**

With the preliminary results available, for performance, vocalizations, exit speed, and accelerometer outcomes our hypothesis that a significant stress resistance exists for F calves is somewhat supported. Future findings will be informed by additional replicates of the study, as well as additional stress and behavioral outcomes. We are cautious when interpreting our data, since it represents preliminary results and hence risk of Type II errors. Furthermore, effects of social buffering on performance results will be informed by additional outcomes related to home pen behavior [D0-D28], chute struggle score at handling [D0-D7, D14-D28], cortisol [D0, D14, D21, D28], wound healing scores and scrotal infrared thermography [D21,D28,30] outcomes.