

Evaluation of factors affecting surplus calf sale price and industry stakeholder attitudes toward surplus calves

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Introduction

In the dairy industry, approximately half of the calves born are sold into the meat industry as “surplus calves”. Since these calves are not considered to be valuable to dairy producers, they frequently receive suboptimal care. Dairy producers in the Midwest reported they provided better care to calves sold directly than through auction (Creutzinger et al., 2022), but there is no data to support this. Thus, the objective of this study was to assess factors that influenced sale price and if calf condition varied between those sold at auction vs. directly to a calf-raiser.

Materials and methods

An observational study was performed in Wisconsin at 6 dairy farms and 3 livestock auctions, including calves sold directly to calf-raisers ($n = 106$ calves) and through livestock auctions ($n = 106$ calves). Calf sex and breed (dairy vs. dairy-beef) were recorded. Fecal consistency, respiratory disease and hydration status was recorded for all calves immediately prior to sale. A blood sample was collected to evaluate serum total protein for passive transfer of immunity (> 5.5 or > 6.2 g/dL for hydrated and dehydrated calves, respectively). Body condition score and weights were assessed at livestock auction. Sale price and purchaser was recorded for all calves. Analysis was performed in SAS. Mixed linear models were used to assess sale price. Logistic regression models were performed to determine odds ratios for failed transfer of passive immunity (FTPI), fecal score, respiratory disease, nasal discharge, eye discharge and dehydration.

Results

Calves assessed at the auction were more likely to have FTPI than calves sold directly (OR = 3.74; 95% CI = 1.93 - 7.22; $P < 0.001$) but there was no difference between breed (OR = 1.19; 95% CI = 0.60 - 2.34; $P = 0.62$). Calves sold at auction vs. directly were also more likely to have diarrhea (OR = 2.85; 95% CI = 1.22 - 6.67; $P = 0.02$). In univariable analysis, there were no predictors for respiratory disease. Calves sold at auctions were more likely to have eye discharge than those sold directly (OR = 2.65; 95% CI = 1.19 - 5.92; $P = 0.02$). Finally, dairy calves tended to have an increased likelihood of dehydration than dairy-beef calves (OR = 1.84; 95% CI = 2.84 - 10.83; $P = 0.09$). There was an interaction between sale location and breed ($P < 0.001$) and sex and breed ($P < 0.001$) on sale price. Dairy calves sold for less than dairy-beef calves at livestock auctions (LSM \pm SE: \$91.2 \pm 57.4 vs. \$321.1 \pm 55.0; $P < 0.001$), but there was no difference in price between dairy and dairy-beef cross calves sold directly (\$252.6 \pm 74.1 vs. \$306.0 \pm 70.1; $P = 0.37$). Female dairy calves sold

for less than female dairy-beef calves (\$93.3 \pm 54.1 vs. \$303.8 \pm 45.3; $P < 0.001$). Male dairy calves also sold less than male dairy-beef calves (\$250.5 \pm 46.4 vs. \$323.3 \pm 45.4; $P = 0.001$). A separate model was performed for calves sold at livestock auctions because only their weights were recorded. Sale price increased as calf weight increased (slope = 5.0, intercept = -76.2, $P < 0.001$).

Significance

The overall results from this study are similar to Renaud et al. (2020) which reported 24% of calves at dairy farms and auctions had FTPI. However, in our study, calves were more likely to have FTPI if they were sold at auction compared to directly (46% vs. 18% of calves, respectively). Calves were also more likely to have diarrhea if they were sold at auction than directly (24% vs. 8% of calves, respectively). Results from this study provide support that calves may receive better care when they are sold directly to a purchaser compared to being sold through auction, as suggested by Creutzinger et al. (2022). It is unclear what is driving these differences. However, these results indicate more research is needed to understand why dairy calves had better health when sold directly and if a direct connection between calf seller and purchaser benefits the calf.

