Estimation of the Effects of Bovine Respiratory Disease Treatments through the Feedlot Phase and the Differences among Sires of Angus Cattle

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Summary and Implications
Number of treatments for bovine respiratory disease (BRD) has significant consequences on economically important performance and carcass traits over the feedlot phase. In addition, it appears that genetics play an important role in the resistance to respiratory disease in Angus cattle.

Introduction
Bovine respiratory disease is the cause of significant economic losses in the cattle industry. Therefore, the objective of this study was to examine the effects of treatment for bovine respiratory disease on economically important performance and carcass traits. In addition, we wanted to begin to examine the impact genetics has on susceptibility to bovine respiratory disease.

Materials and Methods
Performance and health treatment records on 1714 Angus-sired calves fed at various feedlots over a three year period (2003-2005) were used in this analysis. Traits in this study were analyzed with general linear models to estimate significance and effects. We then evaluated the extent to which number of treatments for bovine respiratory disease influenced performance traits such as overall average daily gain (ADG), weight per day of age (WDA), age at harvest (AH), and carcass traits such as hot carcass weight (HCW), ribeye area (REA), ribeye area per 45.5 kg of carcass weight (REAcwt), calculated yield grade (YG), and marbling score (MS).

Results and Discussion
Treatment for respiratory symptoms ranged from a high incidence of 18.8% in 2003 to a low incidence of 5.8% in 2004. Overall, a majority of the cattle were never treated (89.5%) whereas 4.6% of cattle were treated once or twice, and 1.5% were treated three to six times. Sire, % shrink upon entrance to the feedlot, and average disposition score were all shown to have significant effects ($P<0.05$) on the number of times an animal was treated for respiratory disease. Sex was not a significant predictor of number of bovine respiratory disease treatments ($P>0.10$). Treatment for bovine respiratory disease was shown to significantly effect overall average daily gain and weight per day of age ($P< 0.05$). There was no effect observed on age at harvest. In addition, number of treatments for bovine respiratory disease showed significant effects on hot carcass weight, ribeye area per 45.5 kg of carcass weight, calculated yield grade, and marbling score ($P<0.05$), and ribeye area ($P<0.10$).

Table 1. Estimate of effect of number of treatments as fixed effect in model for various traits.

Treatments	N	ADG	WDA	HCW	MS
0	1527	---	---	---	---
1-2	157	-0.17***	-0.18	-15.51**	-0.09
3-6	25	-0.39***	-0.13**	-44.54***	-0.64**

Note: ***$P<0.0001$; **$P<0.01$