BEEF CATTLE RESEARCH UPDATE

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Effect of Health on Feedlot Performance and Carcass Traits in Beef Calves

Research continues to accumulate that illustrates the huge negative impact that morbidity has on the performance and carcass traits of feedlot cattle. Recent Iowa State University research studied these relationships in 27,538 calves from 15 states fed at ten Iowa feedlots in the Iowa Tri-County Futurity from 2002 thru 2007.[1] A common diet and similar implant and health programs were administered to all calves in the program. Calves were sorted and harvested when visually evaluated to have 0.4 inches of fat cover. In this study, calf health status was classified as never treated, treated one time, or treated two or more times. The morbidity or sickness rate in this summary was 17.1%. The predominant cause of treatment was respiratory problems. In addition, at harvest the carcasses were classified as either having or not having trimable lung adhesions.

The effect of health status on feedlot performance and carcass traits is shown in Table 1. In this summary, cattle receiving one medical treatment gained 5% slower than healthy cattle and cattle treated two or more times gained 8.4% slower than healthy cattle. In addition, 71.5% of the never treated cattle graded choice or better as compared to 53.4% of the cattle treated two or more times. Similar results were observed in a summary of steers enrolled in the New Mexico Ranch to Rail to program (813 steers) from 2001 to 2004.[2] In this summary, cattle receiving one medical treatment gained 4.1% slower than healthy cattle and cattle treated two or more times gained 13.2% slower than healthy cattle. Similar results were also reported in an Oklahoma study that looked at the impact of bovine respiratory disease during a 150-day finishing period using 204 steer calves.[3] In this study, steers treated more than once gained 11.8% slower than healthy steers.

Table 1. Effect of health on feedlot performance and carcass traits.

	# Treatments per Head		
Item	0	1	2+
No. of Calves	22,830	3,080	1,628
Final Wt, lb	1184	1158	1144
ADG, lb	3.22	3.06	2.95
Days on Feed	170	179	183
Treatment Cost, $/hd	0.00	23.40	54.07
Death Rate, %	0.1	5.5	14.1
USDA Quality Grade			
Choice or Prime, %	71.5	61.7	53.4
Select, %	26.6	34.5	37.7
Standard, %	2.0	3.9	8.8
CAB® Acceptance Rate, %	21.4	17.2	14.8

Adapted from Busby et al., 2008

A summary of the Texas A&M Ranch to Rail database[4] for 1991-1995 also showed the same type of results. Cattle that never got sick gained 5.8% faster than sick cattle (2.93 vs 2.77 lb/day). In addition, 39% of the healthy cattle graded choice or better while only 27% of the sick cattle reached the choice grade. More importantly, healthy cattle averaged $92.26 more profit per head than did sick cattle. Only $31 of the difference in profits was due to additional medication cost, with the remainder being due to reduced performance and sales values. In a summary of the Texas Ranch to Rail program for 2000-2001[5], even more dramatic reductions in feedlot performance and profitability were noted in sick cattle. Healthy cattle gained 16.3% faster than sick cattle (2.85 vs 2.45 lb/day) with 56% of the healthy cattle grading choice versus only 41% of the sick cattle.

Healthy cattle averaged $151.18 more profit per head. Only $44.55 of the difference in profits was due to medication cost.

The effect of the presence lung adhesions on feedlot performance and carcass traits of cattle in the Iowa research are shown in Table 2. In this summary, the presence of lung adhesions decreased daily gains by 6.25%. It is interesting to note that the morbidity rate in calves without lung adhesions was 15.2%. This might indicate that the medical treatment was successful and resulted in resolution of lung damage. The morbidity rate in calves with lesions was 26.9%. The cattle with lung adhesions also graded poorer than cattle without lesions. In the previously referenced Oklahoma study, steers with lung lesions at harvest gained 11.4% slower than cattle without lesions.[3] Similar to the Iowa summary, the percentage of standard carcasses was greater in cattle with lesions (19.5 vs 8.6%).

Table 2. Effect of lung adhesions on feedlot performance and carcass traits.

Item	No Lung Adhesions	Lung Adhesions
No. of Calves	25,861	1,105
ADG, lb	3.20	3.00
Morbidity, %	15.2	26.9
Treatment Cost/hd, $	4.63	9.90
USDA Quality Grade		
Choice or Prime, %	69.8	60.5
Select, %	27.8	34.7
Standard, %	2.5	4.8
CAB® Acceptance Rate, %	20.9	14.8

Adapted from Busby et al., 2008

In conclusion, all of these data stress the importance of health in the feedlot and the value of vaccination and preconditioning programs prior to arrival at the feedyard.

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[1] Busby, W. D., D. Strohbehn, L. R. Corah, and M. E. King. 2008. Effect of health on feedlot performance and carcass traits in beef calves. J. Anim. Sci. 86 (E-Suppl. 3):20 (Abstr.). Available: http://adsa.asas.org/midwest/2008/08Abstracts.pdf.

[2] Waggoner, J. W., C. P. Mathis, C. A. Loest, J. E. Sawyer, and F. T. McCollum, III. 2006. Impact of feedlot morbidity on performance, carcass characteristics and profitability of New Mexico ranch to rail steers. 2006 Cattle Growers' Short Course Proceedings & Livestock Research Briefs. New Mexico State Univ. p. 72 (Abstr.).

[3] Gardner, B. A., H. G. Dolezal, L. K. Bryant, F. N. Owens, and R. A. Smith. 1999. Health of finishing steers: Effects on performance, carcass traits, and meat tenderness. J. Anim. Sci. 77: 3168-3175.

[4] McNeill, J. W., J. C. Paschal, M. S. McNeill, and W. W. Morgan. 1996. Effect of morbidity on performance and profitability of feedlot steers. J. Anim. Sci. 74 (Suppl. 1): 135 (Abstr.).

[5] McNeill, J. 2001. 2000-2001 Texas A&M Ranch to Rail – North/South summary report. Available: http://animalscience.tamu.edu/ansc/publications/rrpubs/ASWeb084-2001summary.pdf