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Effects of Pneumo-guard H® and Vitamin E on gain and health of stockers purchased as steers and bulls

Abstract

Pneumo-Guard H® and injectable Vitamin E did not improve cattle gain or reduce treatments required per animal during a 29-day receiving trial. Stockers purchased as steers gained faster ($P < .001$) and required fewer ($P < .001$) treatments per animal than bulls castrated on arrival.

Keywords

Cattlemen's Day, 1987; Kansas Agricultural Experiment Station contribution; no. 87-309-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 514; Beef; Pneumo-guard H®; Vitamin E; Stockers

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Effects of Pneumo-Guard H® and Vitamin E
on Gain and Health of Stockers Purchased
as Steers and Bulls^{1,2}

Frank Brazle³

Summary

Pneumo-Guard H® and injectable Vitamin E did not improve cattle gain or reduce treatments required per animal during a 29-day receiving trial. Stockers purchased as steers gained faster ($P < .001$) and required fewer ($P < .001$) treatments per animal than bulls castrated on arrival.

Introduction

Research has shown Vitamin E to be involved in animals' immunological response to disease. Therefore, one objective of this study was to determine if injectable Vitamin E would affect the gain and health of newly arrived cattle. One of the most important disease organisms in newly purchased cattle is Pasteurella hemolytica. Therefore, the second objective was to evaluate Pneumo-Guard H® in reducing sickness in newly arrived stockers.

Experimental Procedures

One thousand, mixed breed, steer and bull calves and yearlings were purchased over a 60-day period in the fall from 12 local sale barns in southeast Kansas. The cattle were processed within 24 hours of arrival at the feedlot. They were vaccinated for IBR, BVD, PI₃, and 7-way blackleg; dewormed with Tramisol®, and treated for external parasites with Tiguvon®. Horns were tipped and bulls were castrated with a knife. All cattle were individually weighed and visually evaluated for body condition and apparent breed type. The cattle were randomly allotted to treatment at processing. The experimental design was a 2x2 factorial arrangement. Five hundred stockers were vaccinated at arrival for Pasteurella hemolytica with Pneumo-Guard H® and re-vaccinated 3 to 4 weeks later. Five hundred cattle were injected with 10 ml (2500 IU) of Vitamin E.

The cattle were started on 5 lbs of whole shelled corn and .5 lb of 34% protein supplement containing 300 mg Bovatec® per head daily, plus free choice hay consisting of 50% prairie grass and 50% alfalfa. During the 29-day receiving period, the cattle were pulled when they appeared sick and were treated.

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²Appreciation is extended to Richard Porter, Reading, KS for providing the cattle and collecting the data.

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Treatment was continued until visual appearance improved or body temperature returned to normal. Choice of medications was determined by the local veterinarian and producer.

Results and Discussion

Neither Pneumo-Guard H[®] nor a single injection of 2500 IU of Vitamin E had any effect on 29-day gain or health of newly purchased stockers (Table 9.1 and 9.2). However, other research has suggested a benefit from daily supplementation of Vitamin E to stressed stockers. Cattle purchased as steers gained faster ($P < .001$) and required fewer treatments per animal than bulls castrated on arrival (Table 9.3). The fleshiness or body condition scores (1=extremely thin, 9=very fat) of the cattle affected gain and health. In the present trial, cattle with scores of 4 to 5 were in average stocker condition, while those scored 3 were relatively thin and those scored 6 were moderately fleshy. In both steers and bulls, daily gain during the 29-day receiving period was reduced with increasing body condition, whereas the treatments required per head increased with higher condition (Table 9.4).

Cattle with lighter starting weights had lower ($P < .05$) daily gains and required more treatments per animal during the first 29 days (Table 9.5). In general, the larger breed types gained faster during the 29-day receiving period than the smaller framed cattle. Apparent breed types involving dairy-, Brahman-, and European-crosses, and Angus cattle required fewer ($P < .05$) treatments per animal, whereas Hereford and Hereford Angus-cross stockers required the greatest number of treatments (Table 9.6).

Table 9.1. Effects of Pneumo-Guard H[®] on Gain and Health of Newly Arrived Stockers

Item	Pneumo-Guard	Control
No. Head	500	500
Daily Gain, lb	2.61	2.64
% Cattle Treated	25.9	27.4
Treatments Required/Animal	.76	.76
No. Dead	8	5

Table 9.2. Effects of Injectable Vitamin E on Gain and Health of Stockers

Item	Vitamin E Injection	Control
No. Head	500	500
Daily Gain, lb	2.60	2.65
Treatments Required/Animal	.77	.74
No. Dead	6	7

Table 9.3. Effects on Gain and Health of Stockers Purchased as Either Steers or Bulls

Item	Steers	Bulls
No. Head	660	327
Average Wt., lb	550	526
Daily Gain, lb	2.43 ^a	1.51 ^b
Treatments Required/Animal	.55 ^a	2.22 ^b
No. Dead	9	5

^{ab} Means in the same row not sharing the same superscript are different (P<.001).

Table 9.4. Effects of Body Condition on Gain and Health of Stockers Purchased as Steers or Bulls

Item	Body Condition Score			
	3	4	5	6
Daily Gain, lb:				
Steers	2.93 ^a	2.45 ^a	2.25 ^b	2.10 ^b
Bulls	1.71 ^a	1.69 ^a	1.46 ^{ab}	1.18 ^b
Treatments Required/Animal:				
Steers	.14 ^c	.87 ^d	.48 ^{cd}	.98 ^d
Bulls	1.30 ^a	2.45 ^{ab}	2.07 ^{ab}	3.04 ^b

^{ab} Means in the same row not sharing the same superscript are different (P<.005).

^{cd} Means in the same row not sharing the same superscript are different (P<.05).

Table 9.5. Effects of Starting Weight on Gain and Health of Stockers

Item	<400	400 to 500	500 to 600	600 to 700	>700 lb
No. Head	63	274	376	226	48
Daily Gain, lb	1.71 ^a	1.75 ^a	1.99 ^b	2.00 ^b	2.16 ^b
Treatments Required/ Animal	2.14 ^a	1.89 ^{ab}	1.25 ^{bc}	.98 ^c	.13 ^d

^{abcd} Means in the same row not sharing the same superscript are different (P<.05).

Table 9.6. Effects of Breed Type on Gain and Health of Stockers¹

Item	Angus	Black Holstein Cross	Hereford	Hereford- Angus Cross	Other Dairy	Brahman Cross	Exotic Cross
No. Head	315	19	167	224	24	51	114
Daily Gain, lb	2.33 ^b	2.63 ^{ab}	2.33 ^b	2.27 ^b	3.09 ^a	3.10 ^a	2.42 ^b
Treatments Required/Animal	.74 ^b	1.19 ^{ab}	1.75 ^a	1.43 ^a	.18 ^b	.36 ^b	.77 ^b

¹ Apparent breed type was based on visual appraisal.

^{abcd} Means in the same row not sharing the same superscript are different (P<.05).