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Effect of castration method on stocker health and gain

Abstract

Two field trials were conducted to compare two different band-castration techniques with surgical castration of calves and yearlings. In Trial I, the bull calves were surgically castrated or banded with Elastrator® rubber rings and compared with calves purchased as steers. Purchased steers gained faster ($P < .05$) during the 33-day receiving trial than bulls castrated by either method, but no difference was observed in percentage of sick calves. In Trial II, yearling bulls were surgically castrated or banded with the EZE® Bloodless Castrator device. Yearlings purchased as steers gained faster ($P < .05$) than EZE-castrated bulls during the 110-day trial. Bulls castrated by either method required more medications ($P < .07$) than steers. In both trials, there was no advantage to banding compared with surgical castration of bulls in terms of gain or health.

Keywords

Cattlemen's Day, 1992; Kansas Agricultural Experiment Station contribution; no. 92-407-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 651; Beef; Castration; Banding; EZE device; Stocker cattle

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EFFECT OF CASTRATION METHOD ON STOCKER HEALTH AND GAIN¹

F. K. Brazle²

Summary

Two field trials were conducted to compare two different band-castration techniques with surgical castration of calves and yearlings. In Trial I, the bull calves were surgically castrated or banded with Elastrator[®] rubber rings and compared with calves purchased as steers. Purchased steers gained faster ($P < .05$) during the 33-day receiving trial than bulls castrated by either method, but no difference was observed in percentage of sick calves.

In Trial II, yearling bulls were surgically castrated or banded with the EZE[®] Bloodless Castrator device. Yearlings purchased as steers gained faster ($P < .05$) than EZE-castrated bulls during the 110-day trial. Bulls castrated by either method required more medications ($P < .07$) than steers. In both trials, there was no advantage to banding compared with surgical castration of bulls in terms of gain or health.

(Key Words: Castration, Banding, EZE Device, Stocker Cattle.)

Introduction

Surgical castration of bull calves and yearlings causes stress from blood loss and physical changes to the body. Research has shown that daily gain is reduced .5 lb during the first 28 to 30 days and by .15 to .25 lb

during the following 30 to 150 days after surgical castration, depending on the age and weight of bulls.

Therefore, a castration method that would reduce stress on bull calves and yearlings would benefit many stocker operators. The objective of these two studies was to determine if banding bulls would minimize stress as indicated by reduced health problems or increased gain.

Experimental Procedures

In Trial I, 496 mixed-breed steer and bull calves (253 lb) were purchased from Tennessee and Mississippi over a 5-day period in the fall. The calves were allotted to three treatments: 1) calves purchased as steers, 2) calves purchased as bulls and surgically castrated, and 3) calves purchased as bulls and banded with Elastrator rubber rings.

The calves were vaccinated at arrival against IBR, BVD, PI₃, and blackleg (7-way); treated for internal and external parasites with Ivomec[®]; and implanted with Synovex-S[®]. The calves were also vaccinated subcutaneously with 500 U of tetanus antitoxin. The calves were offered a forage diet of 1/2 alfalfa and 1/2 prairie hay fed to appetite and supplemented with 2.5 lb of whole corn and .5 lb of a 40% protein pellet during the 33-day receiving study.

¹Appreciation if expressed to Richard Porter, Reading, Kansas, for providing the cattle and collecting performance and health data.

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In Trial II, 60 mixed-breed steers and bulls (660 lb) were purchased locally over a 10-day period. The yearlings were allotted to three treatments: 1) yearlings purchased as steers, 2) yearlings purchased as bulls and surgically castrated, and 3) yearlings purchased as bulls and banded with the EZE Bloodless Castrator device.

The cattle were vaccinated against IBR, BVD, PI₃, leptospirosis, and blackleg (4-way); treated for internal parasites with levamisole and external parasites with Lysoff®; and implanted with Ralgro®. The yearlings were vaccinated subcutaneously with 1500 U of tetanus antitoxin. The cattle were initially drylot for 36 days and fed 3 lb of a 15% crude protein grain mix plus prairie hay fed to appetite. The steers then grazed native grass pastures for 74 days until July 2.

Results and Discussion

In Trial I, the purchased steers gained faster ($P < .05$) than either castrated group, but no difference in morbidity was observed (Table 1). In Trial II, steers gained faster ($P < .05$) than banded bulls, with knife castrated bulls intermediate in gain. Both castrated groups required more medications ($P < .07$) than yearlings purchased as steers (Table 2). Band-castration (Elastrator or EZE device) of bulls did not improve gain, morbidity, medications required or cost of medication over surgically castrated bulls in these studies.

Research has shown that bull calves or yearlings are more susceptible to stress than

steers. Probably some time is required for hormone changes to occur before a newly castrated bull can respond to stress like a steer castrated early in life. This process may take weeks to occur.

Therefore, the reason for increased morbidity of bulls may be twofold. First, most stocker bulls probably have not received vaccinations to build immunity against certain viruses. Secondly, the temperament of young bulls may create more stress because of social problems. This may explain why bulls that are banded with the EZE device seem uncomfortable for a few hours after the procedure and then resume normal eating habits, yet have as much or more morbidity as surgically castrated calves or yearlings. Our treatment records show that sickness occurred in surgically castrated bulls within 3 to 4 days after arrival. However, 7 to 8 days passed before the EZE banded bulls became ill. However, banding bulls with either Elastrator rubber bands or the EZE Bloodless Castrator device did not reduce stress as indicated by either medications required or animal gain.

When properly used, the EZE device should not result in scrotal swelling. However, if the band is not tight enough, some swelling will occur. On improperly banded bulls, considerable time may pass before the scrotal sack drops off. In these individuals, gains can be greatly reduced and health problems increased. The best course of action with improperly banded calves is probably surgical castration.

³EZE Bloodless Castrator, Wadsworth Manufacturing, St. Ignatius, MT.

Table 1. Effects of Castration Method on the Gain and Health of Calves (Trial 1)

Item	Purchased steers	Surgically castrated bulls	Elastrator banded bulls
No. cattle	118	190	188
Daily gain, lb (33 days)	1.85 ^b	1.63 ^a	1.47 ^a
Mortality, %	6.4	10.6	14.0
Morbidity, %	75	81	78
Medication days/ animal purchased	5.81	6.86	7.09
Drug cost/ head, \$	10.43	12.37	12.52

^{ab}Means in the same row with unlike superscripts are different (P < .05).

Table 2. Effects of Castration Method on the Gain and Health of Yearlings (Trial II)

Items	Purchased steers	Surgically castrated bulls	EZE Device banded bulls
No. cattle	20	20	20
Daily gain, lb (110 days)	2.05 ^b	1.78 ^{ab}	1.58 ^a
Medication days/ animal purchased	.35 ^c	1.45 ^d	2.20 ^d

^{ab}Means in the same row with unlike superscripts are different (P < .05).

^{cd}Means in the same row with unlike superscripts are different (P < .07).