

Bull Social Interaction Impacts Calf Crop in Multi-Sire Pastures

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BOTTOM LINE

Reproductive success in multi-sire breeding units is dependent upon the social interaction among bulls.

Summary

- Under situations maximizing breeding competition, the reproductive success of socially dominant bulls is much greater than for submissive bulls.
- As the situation becomes less competitive, socially submissive bulls become much more successful reproductively.
- Success of the unit is dependent upon the social interaction among the bulls.
- Evidence indicates that the consummate breeding success of the unit may be improved if the animals are paired to maximize differential social dominance between the bulls involved.

Introduction

The large pastures of south Texas dictate that cow-calf enterprises must employ multi-sire breeding groups. Criteria for bull selection in multi-sire units has usually been similar to that used for single sire breeding groups. The primary considerations have been indicators of genetic merit such as pedigree, conformation and performance records. Then, it became recognized that, if a bull is not capable of reproduction, his genetic merit is unimportant. The importance of semen evaluation in this regard was recognized first. More recently, variation in libido among bulls has been recognized as a criterion of importance and a serving capacity exam has been developed to evaluate differences in libido. An observation often made is that bulls not only vary in genetic merit for performance, physical ability for reproduction, and reproductive desire, but also in social dominance. This variation in aggressiveness may be related to the ability of bulls to successfully reproduce. Also, the social interaction among bulls in multi-sire pastures may impact the consummate reproductive success of the unit. The purpose of this experiment was to evaluate the role of social dominance in reproductive success of bulls in multi-sire

breeding units and to evaluate the role of social interaction among bulls on size of the calf crop.

Experimental Approach

Nineteen, 3-yr-old Angus and Braford bulls that had been maintained in one herd for one yr were screened for breeding soundness and serving capacity. Those with satisfactory serving capacity and breeding soundness scores were randomly paired across breeds for social dominance testing. Dominance (DOM) and submissiveness (SUB) were assessed when bulls were forced to compete for limited feed and water. Videotape of the interactions was analyzed and the ratio of agonisms initiated to those won, lost or tied were computed. DOM and SUB bulls were paired for a 60-d pasture mating season. Each pair consisted of one Angus and one Braford in order to allow identification of a given sire's progeny based on identifiable characteristics of the calves. Brahman-Hereford F1 cows that were synchronized in estrus were allotted to each pasture to maximize reproductive stress on the bulls. Number of cows allotted to the four pastures used ranged from 22 to 38 in order to evaluate the effect of an array of competitive situations on relative success of the pairings.

Results

No difference in reproductive success was detected between the Angus and Braford bulls. As the number of cows in the pastures increased, however, the relative success of the SUB bulls increased more rapidly than the success of DOM bulls, while the relative success of the pair improved. As herd size increased, number of open females decreased (Figure 1). When bulls were allotted 22 cows, the

DOM bull left more offspring than the SUB bull. Consistent trends were evident so that at the other extreme of 38 females, the SUB bull left more offspring than the DOM bull.

Conclusions and Implications

Social interaction among bulls is an important determinant in reproductive success in multi-sire situations.

The reproductive success of the unit is dependent upon both the dominant and the submissive bulls but not equally in all situations.

When reproductive competition is high, success of the unit appears to be more dependent upon the dominant bull.

When reproductive competition is less, success of the unit appears to be more dependent upon the submissive bull.

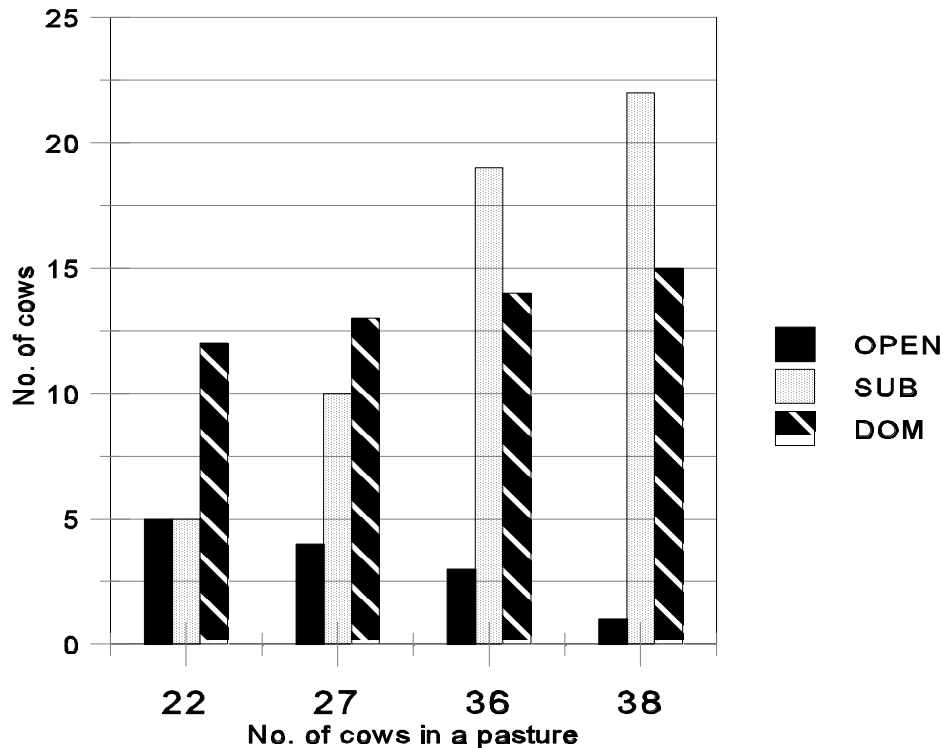


Figure 1. Relative reproductive success of bulls varying in social dominance.