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SEXUAL AGGRESSIVENESS IN BEEF BULLS

Donald D. Lunstra¹

Introduction

Large differences in conception rate during pasture-mating can exist among beef bulls having semen of acceptable quality. Based on data from artificial insemination, we know also that conception rate increases as the number of inseminations increases, and it is probable that conception rate to natural mating increases as number of matings per cow increases. Sexual aggressiveness (libido) is a behavioral factor that can influence the number of matings a bull can achieve and, thus, may influence the conception rate obtained during natural mating. Accurate evaluation of sexual aggressiveness and its relationship to fertility may provide useful information for selecting young beef bulls with high breeding potential. We conducted the following studies to investigate sexual activity in young beef bulls during a series of libido tests and to evaluate the relationship between libido test activity and fertility during natural mating.

Procedure

Libido Testing. Fifty yearling Hereford bulls that had been subjected to similar managerial and environmental influences since birth were evaluated for sexual aggressiveness. Bulls were allotted at random into subgroups of five bulls and subjected to six 30-min libido tests during a 21-day period (tested once every 4 days). For each test, five bulls were exposed to four ovariectomized, estrus-induced heifers for 30-min, and sexual behavior (mounts and matings) was recorded for each bull.

Semen was evaluated and scrotal circumference was measured on all bulls following libido testing. We eliminated five bulls from the study for lack of physical soundness, and we analyzed sexual aggressiveness for the remaining 45 bulls (Fig. 1). The 45 bulls exhibited a continuous increase in percent bulls mating during the first three libido tests (Fig. 1). Number of matings per bull per test also increased during the first three tests. These data indicate that yearling bulls undergo a learning process or acclimation to the test environment during initial libido tests, and that at least two libido tests are required before sexual activity of yearling bulls becomes stabilized. Large differences in mating activity existed among the bulls tested. Four bulls (9%) exhibited no sexual interest during libido testing, 8 bulls (19%) were classified as low libido

bulls (0.4 ± 0.1 matings/test), 19 bulls (42%) were classified as medium libido bulls (1.5 ± 0.1 matings/test), and 14 bulls (31%) were classified as high libido bulls (2.6 ± 0.2 matings/test).

Four bulls with similar, acceptable semen quality were selected from each of the groups of bulls classified as low, medium, or high libido. Only bulls that had mated during libido tests were selected from each libido class. Each of the 12 selected bulls was individually exposed to 50 heifers and allowed to mate at will for 20 days. Low libido bulls mated significantly fewer of the heifers in estrus (71%) than did medium libido (95%) or high libido (87%) bulls (Table 1). Based on palpation at 50 days after exposure to a bull, conception rate per heifer in estrus (Table 1) was significantly lower for low libido bulls (33%) than for medium (50%) or high

libido bulls (51%). The decreased conception rate for low libido bulls appeared to be directly related to their decreased ability to detect and mate all heifers in estrus. No significant difference in conception rate was observed between medium and high libido bulls (Table 1). The correlation between scrotal circumference and conception rate was not significant ($r = 0.40$). The correlation between conception rate/bull and number of matings/libido test/bull was highly significant ($r = 0.68$). We concluded that the sexual activity expressed by bulls in libido tests was related positively to the conception rate achieved by these bulls during single sire fertility trials. Testing and selecting bulls for acceptable sexual aggressiveness may provide an effective tool for identifying bulls with superior breeding potential.

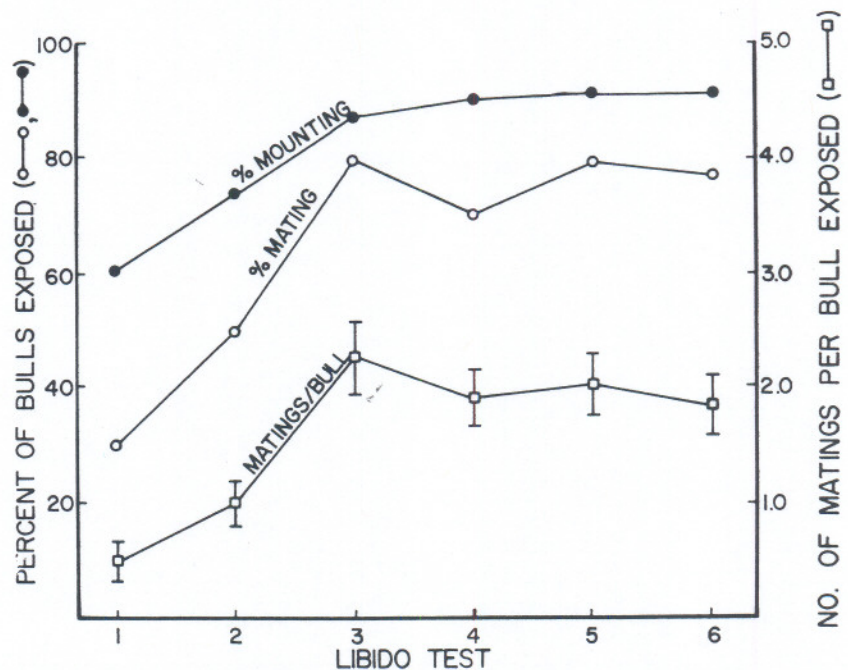


Figure 1.—Mounting and mating activity of 45 yearling bulls subjected to six 30-minute libido tests.

Table 1.—Mating and conception rate for individual bulls exposed to 50 cyclic heifers for 20 days¹

| Bull libido group | Number of bulls | Number of heifers exposed | Heifers exhibiting estrus (%) | Estrus heifers mated (%) | Conception rate/heifer exposed (%) | Conception rate/estrous heifer (%) |
|-------------------|-----------------|---------------------------|-------------------------------|--------------------------|------------------------------------|------------------------------------|
| High..... | 4 | 198 | ² 90 | ² 87 | ² 46 | ² 51 |
| Medium..... | 4 | 200 | ² 96 | ² 95 | ² 48 | ² 50 |
| Low..... | 4 | 202 | ² 93 | ² 71 | ³ 30 | ³ 33 |

¹Donald D. Lunstra is a research physiologist at MARC.

²Each bull was exposed to approximately 50 heifers for 20 days (single-sire, natural mating).
³Percentage values without a common footnote within a column are different ($P < 0.01$).