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Effect of Sound Stress on Ovulation, Estrus, and Conception in Beef Heifers

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Summary

Thirty of the 50 heifers used in estrous synchronization studies and that received prostaglandin and Syncro-Mate B to synchronize estrus were subjected to sound stress for 48 hours after prostaglandin was injected. Fifty-nine percent of 29 sound-stressed heifers that showed estrus within 5 days conceived when artificialy inseminated compared with 72 percent of 18 nonstressed heifers.

Introduction

Recent data in sheep indicate that exposing ewes to sound stress shortly before estrus increases ovulation but that does not affect conception rate or maintenance of pregnancy. We studied sound-stressed heifers.

Experimental Procedure

Fifty heifers received ear implants of Syncro-Mate B which were removed 7 days later. At implant removal, heifers were injected intramuscularly with 30 mgs of prostaglandin. Thirty of the 50 heifers were immediately placed in a barn and exposed to 8,000 H_Z pure tones at 90 decibles intensity. The other 20 were protected from the sound (controls). The sound was played intermittently with the sound on 2 minutes and off 8 minutes. After 48 hrs of exposure, all heifers were returned to pens and bred 12 to 18 hours after the onset of estrus. Two weeks after the prostaglandin injection, sound-stressed and control heifers were rectally palpated to determine number of ovulations that had occurred at the last estrus. Numbers of corpora lutea on the ovaries were recorded as the number of ovulations. All heifers were pregnancy diagnosed 65 and 95 days after breeding.

Results and Discussion

Occurrence of estrus and conception rate are reported in Table 17.1. Rectal palpation gave no evidence that sound treatment affected ovulation rate. Onset of estrus occurred over a similar period of time and the duration of estrus was the same for sound stressed and control heifers. A lower percentage 959%) of heifers conceived in the sound-stressed group (17 of 29) than in the control group (72% or 13 of 18); however, work is needed to determine if sound caused the difference.

Table 17.1. Time of Estrus and First Service Conception Rate for Sound Stressed and Control Heifers

Item	Days after prostaglandin injected								Totals
	pm	am	pm	am	pm	am	pm	am	
Heifers	1	2	2	3	3	4	4	5	
No. Controls pregnant from first service	3	3	2	2	0	1	1	1	13
No. sound stressed in estrus	4	4	12	7	0	1	1	0	29[a]
No. Controls in estrus	4	5	3	2	0	2	1	1	18[b]
No. sound stressed pregnant from first service	3	1	10	3	0	0	0	0	17

[a]One heifer was not synchronized (estrus, am day 7).
[b]One heifer was not in estrus until day 19, another heifer did not show estrus.