

## Age Influence on Sexual Libido in Artificially Phimotic Bull-Teasers

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### ABSTRACT

Influence of age upon sexual libido in artificially phimotic bull-teasers was determined at the Livestock Center Triángulo 1 in Camagüey province, Cuba. One hundred and forty Holstein x Zebu crossbred animals at ages 13 to 75 months old were studied from 2007 to 2010. Sexual libido was evaluated as an age dependent variable by a linear regression model using the SPSS statistical package version 15.0.1. Age (39,79 months old  $\pm$  19,89 typical deviation) showed a significant positive influence on sexual libido (6,59 points  $\pm$  1,75 typical deviation). The increase in libido by age was probably due to social rank and experience of more mature males. However, males between 13 months of age or ever showed an acceptable minimal libido rate, hence they could be fit for their role if rationally used and their body built an access to female herd are taken into account.

**Key Words:** *estrus detection, sexual performance, bulls, bull-teasers*

### INTRODUCTION

Lindsay (1996), Parkinson (2004) and Galina, Hornand Molina (2007) have affirmed that the scientific literature contains a lot of contradictions in terms of sexual behavior of males, and not much knowledge has been gathered to specify the ideal conditions to achieve optimum yielding.

Sexual libido is biologically known as the will and desire to try to mount a female (Landaeta-Hernández, Chenoweth and Berndtson, 2001) based on the unconditioned reflexes of mating.

Chenoweth (1981) proposed a scale of 0-10 points, which has been widely accepted and used by the international scientific community in research. A procedure was developed in the *Bos Taurus* breed to identify bulls with structural and service problems, and categorization of its sexual behavior (Bertram *et al.*, 2002).

In temperate areas the sexual libido and its relation with fertility and age has been assessed, but only in males used as studs (Chenoweth, 1983; Farin, Chenoweth, Tomky, Ball and Pexton, 1989; Chenoweth, Chase, Thatcher, Wilcox and Larsen, 1996a; Landaeta-Hernández *et al.*, 2001; Chenoweth, 2004; Ellis *et al.*, 2005). However, in tropical countries such research is insufficient (Jiménez-Severiano, 2002). It is also insufficient in bulls with surgical phimosis and with low genetic quality, which are used as helpers to detect estrus, whose optimum useful time is unknown. The aim of this research was to assess the age effect on sexual libido of cattle teaser bulls with

surgical phimosis in commercial dairy herds in Camagüey.

### MATERIALS AND METHODS

This research was done on dairy cattle herds artificially inseminated, at the Triángulo 1 Cattle Raising Enterprise, in the province of Camagüey, Cuba, from 2007 to 2010. Holstein + Cebu teaser bulls (140), between 13 and 75 months old used as helpers for estrus detection for the inseminator (person in charge of detecting estrus), were examined.

The teaser bulls grazed for a year; some stayed all the time with the cows (50); and others (90) stayed with the cows at some times of the day. Male-female proportion did not exceed 1:30, considered optimum for Holý (1987).

The libido measurement test was performed by placing all teaser bulls near the corral where the females in estrus were, for about 30 min, to produce heat, according to Bertram *et al.* (2002). Then, they were allowed to have physical contact for 10 min, according to (Chenoweth, 1981) and they were assessed within a 0-10 scale (Table 1), where: 0-3, the bull is not good; 4-6, the bull is good; 7-8, the bull is very good; and 9-10, the bull is excellent.

The teaser bulls could not penetrate their penis in the vagina (whole service) due to a surgical phimosis. The pseudo mount, covering and typical kidney tapping in this species were observed.

The age was taken from the data individually recorded in each herd.

The general statistics were calculated and libido was assessed as an independent variable of age. Additionally, the best adjustment per regression models (linear, logarithmic, inverse, quadratic, cubic, logistic and exponential), using SPSS version 15.0.1 (2006), were applied.

## RESULTS AND DISCUSSION

Table 2 shows the results from the descriptive analysis of the mean and typical deviation the sexual libido reached, and the heating bull's age.

The mean value of the libido indicates it is good or very good (Chenoweth, 1981 and Chenoweth, 1997) despite the phimosis. However, the teaser bull would only perform one service, which would allow him—according Araujo, Borgwardt, Sween, Yelichand Price (2003)—to detect between 96 % and 100 % of females in estrus. In that sense, a more intense libido is needed to stimulate the estrus production in the herd (Pérez-Hernández *et al.*, 2002; Fabre-Nysand and Gelez, 2007; Roelofs *et al.*, 2007 and Roelofs *et al.*, 2008). Younger male inability has a major influence.

The mean age of teaser bulls was 39.76 months. Ages were very heterogeneous, which was reflected in the typical deviation, as a result of different local handling practices described by De Loyola (2004), under these conditions and also due to limited systematic possibilities to produce surgical phimosis.

Morgan and Dawson (2008) refer to the preparation of the teaser bulls in the field, and suggest vasectomy and epididymectomy, which does not restrict mounting, because the penis penetrates the vagina. That practice favors the application of Chenoweth's (1981) methodology.

Some producers have mentioned that surgical phimosis reduces or nullifies libido at a certain time. Therefore, libido can endure time and tends to increase according to Holý (1987).

The results from linear regression were chosen by the principle of moderation, according to Hair, Anderson, Tathan and Black (1998), through which in the presence of similar models, the simplest one is chosen. Table 3 shows that age has a significant effect on sexual libido of bulls, and the more age increases, the higher libido is observed.

Mount begins at such early age as two months old (Katz, 2007) and do not entirely depend on hormonal activity in the gonads. Based on that fact, at an early age (13 months), bulls can be used as teasers in Camagüey's conditions, because they have a libido of four points (minimum for the category of good), similar to the one found by Chenoweth *et al.* (1996b) in 12.1 months old, and older than the reports by López *et al.* (1999) (3.2 points), in the presence of the dominating bull; and 3.5 points in his absence. Consequently, it must be considered that young animals should be used less than others older (24 months old), as their servicing capacity is to be assessed in proper time (Landaeta-Hernández *et al.*, 2001). Moreover, some research should be done on the benefits of using age-homogeneous or heterogeneous sets in the dairy herds in Camagüey.

An increase in libido with age was observed in the teaser bulls. This must be based on the social order among the adult bulls in one herd, where the dominating bull inhibits the sexual activity of the rest, even if the oldest male is present during the libido test (López *et al.*, 1999).

Teaser bull groups from different herds were heterogeneous regarding of age. López *et al.* (1999) found in a social behavior study that the young bulls are different as to sexual domination and, therefore, they are less susceptible to the presence of the dominating male, though not untouched by their influence. Besides, the experience of the teaser bull is important, because his possibilities are enhanced in the libido test. In that direction, De Araujo, Borgwardt, Sween, Yelichand and Price (2003) proved that age had a positive effect on studs, because the adult bulls were able to mount more females than the young bulls in the experiment.

Price and Borgwardt (1994) cited by López, Orihuela and Silva (1999), found no significant differences regarding the records of sexual activity in one to more-than three-year-old bulls. On the contrary, Silva-Mena, Ake-López and Delgado-León (2000) determined a significant correlation ( $r = 0.78$ ;  $P < 0.01$ ) between sexual libido (6.4 points and the age of bulls. Albarrán, González-Rubiera and Calderón (2001) stated that the highest reproductive capacity is reached between 4-7 years.

Generally, libido occurred in acceptable minimum values in the youngest animals, which limits their

use as teaser bulls, because high libido is required for that function. Another study would be necessary to determine the optimum usage levels to detect estrus as auxiliary tools and biological stimulators (Pérez-Hernández, García-Winder and Gallegos-Sánchez, 2002; Berardinelli, Joshi and Tauck, 2007; Roelofs, Soede, Voskamp-Harkema, Kemp and Arteaga, 2008).

## CONCLUSIONS

The teaser bull's sexual libido significantly increased with age, which may have been caused by the social order and age-related sexual behavior; however, properly regulated, animals can be used from 13-month old on, because they have minimum acceptable libido for their work. Other effects like body condition and male herd access time should be evaluated.

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**Table 1. Classification scale of sexual libido in bulls (Chenoweth, 1981)**

Points	Attitude
0	The bull shows no sexual interest
1	The bull showed sexual interest once
2	The bull showed positive sexual interest for the female more than once
3	The bull paid active attention to the female, with relentless sexual interest
4	One mount or mount attempt, without a service
5	Two mounts or mount attempts, without a service
6	More than two mounts or mount attempts without a service
7	One service without further sexual interest
8	One service followed by more sexual interest with mount or mount attempt
9	Two services without further sexual interest
10	Two services followed by sexual interest with mount, mount attempt or service

**Table 2. Descriptive statistics of sexual libido and teaser age**

	N	Minimum	Maximum	Mean	Typical deviation
Sexual libido	140	3	10	6.59	1.75
Teaser age	140	13	75	39.76	19.89

**Table 3. Summary of model and estimations of libido parameters as dependent variable of teaser's age**

Model		Non-standardized coefficient		Standardized coefficient	t	Sig.
		B	Error type	Beta		
1	(Constant)	3.71	.19		19.53	.000
	Teaser's age	.07	.004	.82	16.88	.000

Dependent variable: sexual libido