

EFFECT OF AGE ON SEMINAL CHARACTERISTICS OF JERSEY BULL SEMEN

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ABSTRACT

Sixty ejaculates each from young (2.5-3 yr, n=5) and old (6-8 yr, n=5) Jersey bulls were evaluated for fresh and post thaw semen characteristics. The old bulls had higher ($p<0.05$) ejaculate volume, spermatozoa per ejaculate and abnormal spermatozoa. Various post thaw semen parameters viz. motility, live/abnormal spermatozoa, intact acrosome and HOST were similar ($p>0.05$) between young and old bulls. In brief, age has no predominant impact on seminal characteristics of Jersey bull semen.

Keywords: Age, Jersey bull, Post thaw, Semen, Spermatozoa

Semen quality and quantity of breeding bulls is influenced by several non-genetic factors including age (Ahmad *et al.*, 2003). In younger bulls, the testicles are still developing; hence the ejaculated semen may be of low quality. Also, these bulls have under developed thermo-regulatory mechanism that may have negative impact on semen quality (Almquist, 1982). Therefore, the objective of study was to evaluate the effect of age on characteristics of Jersey bull semen.

Semen ejaculates, 60 each, from 5 young (2.5 - 3 yr) and 5 old (6- 8 yr) age group Jersey bulls maintained at Central Semen Station, Anjora were evaluated for seminal characteristics. Immediately after semen collection, twice a week from each bull, each ejaculate was kept at 37°C and evaluated for standard seminal characteristics (Table) using standard procedures. Thereafter, semen samples were diluted in Tris, freezing was carried out after equilibration under standard conditions and the frozen straws were transferred at -196°C. At least 24 h after freezing, cryopreserved semen straws were thawed and assessed for various seminal parameters (Table). For statistical analysis, paired sample t-test was applied to data with SPSS for Windows Version 17.

The ejaculate volume of old bulls was higher ($p<0.05$) than young bulls (Table). Others have reported an increase in ejaculate volume until seven-year age that remains constant till 9-10 year age (Taylor *et al.*, 1985). The spermatozoa concentration was similar ($p>0.05$) between young and old age groups but total spermatozoa per ejaculate were higher in old bulls ($p<0.05$, Table) as reported earlier (Fuerst-Waltlet *et al.*, 2006). The initial progressive motility, live spermatozoa, spermatozoa with intact acrosome and exhibiting hypo osmotic swelling were similar between young and old age ($p>0.05$, Table). However, the number of abnormal spermatozoa increased with age ($p<0.05$, Table) that can be attributed to testicular degeneration with aging (Wolfe *et al.*, 2000). The various post thaw seminal characteristics were also similar between young and old age Jersey bulls (Table). In brief, the old Jersey bulls had higher semen ejaculate volume, as well as total spermatozoa and abnormal spermatozoa per ejaculate as compared to young bulls. Nevertheless, the age in the range of 2.5 to 8 years of Jersey bull had no major impact of fresh and post thaw semen characteristics.

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Table: Seminal characteristics of young and old Jersey bulls

Seminal characteristics	Young bull	Old bull
Ejaculate volume, ml	5.11±0.30 ^A	6.01±0.34 ^B
Spermatozoa concentration, million/ml	1234.4±81.3	1323.9±108.4
Total spermatozoa/ ejaculate, million/ml	5886.1±413.9 ^A	7765.5±735.7 ^B
Initial progressive motility, %	75.83±0.46	76.08±0.56
Live spermatozoa, %	87.23±0.54	85.75±0.83
Abnormal spermatozoa, %	8.94±0.47 ^A	10.73±0.55 ^B
Intact acrosome, %	80.43±0.85	79.94±0.98
Hypo osmotic swelling test (HOST), %	68.35±0.93	67.94±0.90
Post thaw motility, %	49.75±0.41	49.49±0.43
Post thaw live spermatozoa, %	57.82±0.39	57.58±0.41
Post thaw abnormal spermatozoa, %	14.48±0.63	14.97±0.44
Post thaw Intact acrosome, %	68.92±0.70	68.80±0.76
Post thaw HOST, %	53.53±0.70	53.13±0.67

^{A vs B}p<0.05

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