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A PRELIMINARY NOTE ON THE EFFECT OF SEASON ON THE REPRODUCTIVE TRACT OF THE ELAND BULL *TAUROTRAGUS ORYX*

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While some data are available on seasonal reproductive patterns for female eland (Posselt, 1963; Skinner, 1966, 1967; Skinner & van Zyl, 1969), no data whatsoever are available on the seasonal reproductive pattern in the eland bull. In assessing animals for meat production it is important that any natural limitations on their reproductive ability be examined. Recently, six mature eland bulls became available for study at the S.A. Lombard Nature Reserve in the Western Transvaal Highveld. The object of the present study was not only to examine and describe the anatomy of the reproductive tract but also to ascertain what seasonal effects were operative in influencing reproductive capacity in the male.

Over a period of one year, one bull was shot every second month. All the bulls were mature but varied in age between four and ten years. After weighing, the reproductive tracts were dissected out, the testes and accessory glands weighed and sections fixed in Bouin's solution and, after routine paraffin embedding, sections cut at 6 μ and stained with Delafield's haematoxylin and chromotrope 2R. Pieces of testis were also fixed in Zenker-formol for later staining of the interstitium with Sudan black according to Threadgold's (1957) method 1. Pieces of testis were also frozen onto cryostat chucks for sectioning at 16 μ and incubation for three hours at 37°C in order to demonstrate Δ^5-3β-hydroxysteroid dehydrogenase in the interstitium (Hay and Deane, 1966). The percentage motile sperm was estimated subjectively by extruding a droplet from the cauda epididymis onto a warm (37°C) microscope slide and examining wave motion under the microcope. The percentage dead and abnormal epididymal sperm was determined after staining a sample with 10% nigrosin: 1,67% eosin solution. The number of epididymal sperm was estimated according to the method of Dott & Skinner (1967). Vesicular fructose was also determined (Lindner & Mann, 1960).

The reproductive tract of the male eland, the testicular histology and histochemistry and epididymal sperma-

Table 1

Comparison of the mean weight, seminiferous tubule diameter, sperm reserves, motile sperm and vesicular fructose from the reproductive tracts of eland bulls shot at different months of the year

No.	E1	E2	E3	E4	E5	E6	Mean ± S.E.	Range
Month shot	V	VII	IX	XI	I	III		
Liveweight (kg)	496,0	487,8	294,4	320,0	368,0	484,8	408,5 ± 37,6	294,4–496,0
Approximate age (years)	8	3	10	4	4	4	6	3–10
Testes weight (g)	227,4	201,1	150,7	180,1	171,8	288,0	203,2 ± 20,0	150,7–288,0
Seminiferous tubule diameter (μ)	177,6	204,9	168,7	184,9	159,2	189,1	180,7 ± 6,6	159,2–204,9
Epididymes weight (g)	40,1	46,4	27,1	26,2	39,9	45,4	37,5 ± 3,6	26,2– 46,4
Epididymal sperm reserves ($\times 10^9$)	8,0	4,9	3,1	2,8	5,2	10,5	5,7 ± 0,3	2,8– 10,5
Motile sperm (%)	45,0	45,0	40,0	85,0	40,0	85,0	56,6 ± 9,1	40,0– 85,0
Seminal vesicles weight (g)	29,2	31,1	11,7	22,1	33,4	29,9	26,2 ± 3,3	11,7– 33,4
Vesicular fructose mg/100g	105,0	15,4	46,4	114,6	62,0	112,0	75,9 ± 6,7	15,4–114,6
Ampullae weight (g)	10,5	21,9	13,4	12,6	17,4	17,0	15,4 ± 1,7	10,5– 21,9
Bulbo-urethrals weight (g)	12,7	6,5	3,8	2,7	15,4	6,6	7,9 ± 2,1	2,7– 15,6

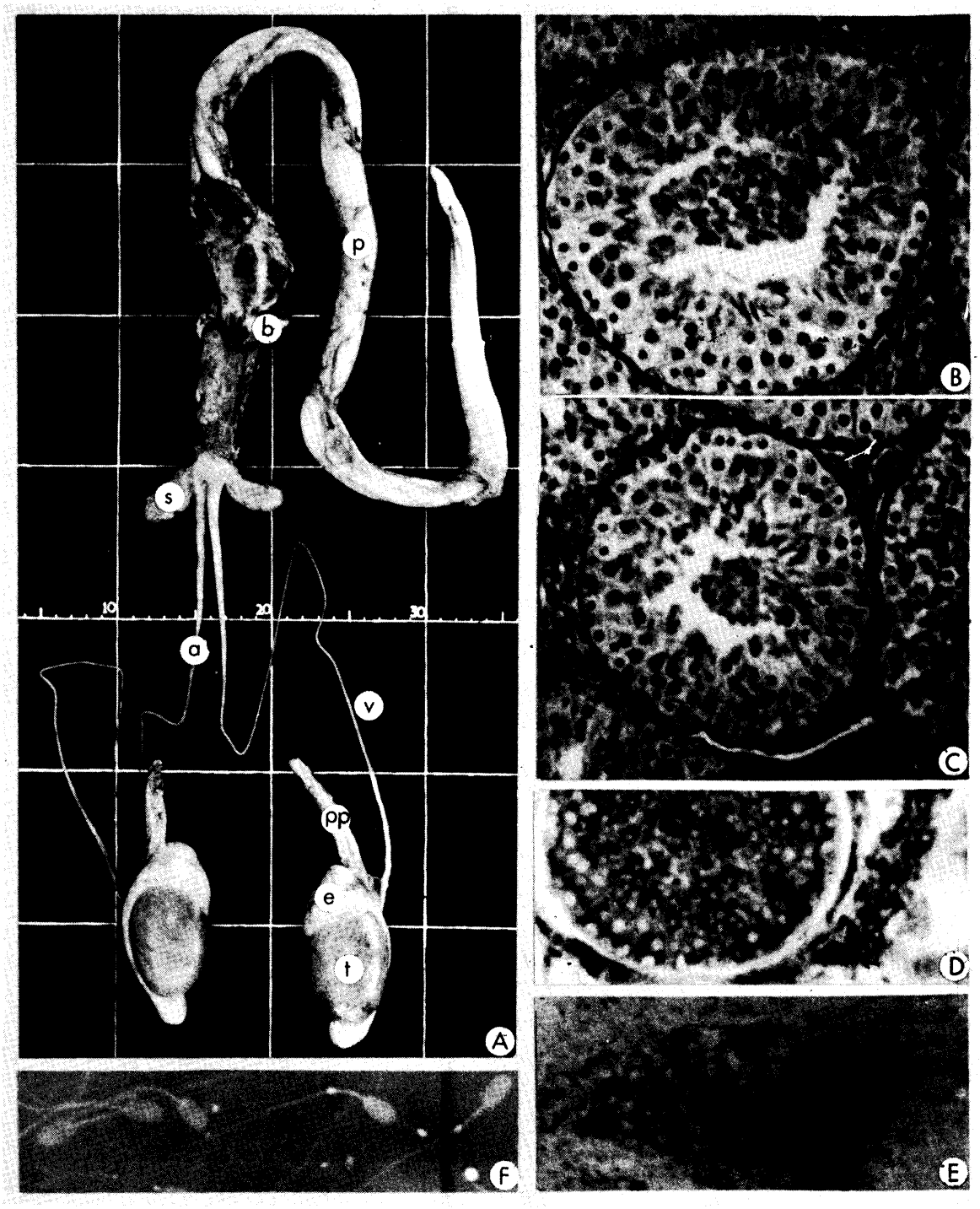

Plate 1

A. *The reproductive tract of the eland bull showing testes (t), epididymides (e), pampiniform plexus (pp), vasa deferentia (v), ampullae (a), seminal vesicles (s), bulbo-urethral glands (b) and penis (p). Scale in cm.*

B. & C. *Cross-sections of the testes x 256 stained with Delafield's haematoxylin and chromotrope 2R. Note the variation in tubule size between eland 1 (B) and eland 3 (C) but there was always an active spermatogenic cycle.*

D. *Cross-section from the testis stained with Sudan black to demonstrate Leydig cells (x 256).*

E. *Unfixed frozen section from the testis incubated for 3 h to demonstrate Δ 5–3β-hydroxysteroid dehydrogenase in the interstitium (x 256).*

F. *Spermatozoa from the cauda epididymis stained with nigrosin:eosin. Note distal droplets.*

tozoa are illustrated in Plate 1. The percentage live spermatozoa was always high (93,5 ± 0,5%) and the percentage abnormal sperm never exceeded five per cent. The rest of the results of this study are presented in Table 1. Although limited, the results do show that there is no great seasonal fluctuation in the eland bull which appears to be capable of reproducing at any time of the year although minimal values were reached in July and September – probably as a result of winter nutritional depressions. The better values in the summer and autumn also coincide with increasing oestrous activity in the female at that time (Skinner & van Zyl, 1969). However, the fact that the eland bull is capable of reproducing all the year round is also in agreement with published calving rates on the female. In terms of practical management when farming with eland, it would be advisable to reduce the number of cows mated per bull from June to October to ensure a good conception rate.

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