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Effect of season on characters of semen in Shami buck

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ABSTRACT

The study was conducted on 6 bucks of Shami breed, Aged 1.5- 2 years, presented in the farm of IPA Goat Station, Agurguf, Baghdad, Iraq, during the period from 1, January 2001, till the 1, January 2002. Semen were collected twice weekly by Artificial Vagina.

The study were undertaken to show the effect of season on characters of semen in Shami buck. The following results had been obtained. There was a significant difference in mean volume of ejaculate in autumn (0.9 ± 0.616) ml than in winter (0.76 ± 0.531) ml other season. Mass activity and Individual motility was shown to be higher during autumn (67.33 ± 32.501 , 69 ± 26.937)% and summer (66.33 ± 35.558 , 66 ± 36.554)%, as compared with winter and spring. Sperm count per milliliter was shown to be higher during summer ($2.03 \pm 1.165 \times 10^9$) than in spring and winter (1.84 ± 1.162 , 1.76 ± 1.046) $\times 10^9$. The season showed no significant effect on per ejaculate. Percentages of dead sperm was high during autumn (5.23 ± 4.161)% than in summer, winter (3.95 ± 4.079 , 3.39 ± 5.138)% and spring. The season showed no significant effect on pH of semen. Abnormal spermatozoa was high in winter (0.49 ± 0.022)% than in spring, summer and autumn.

It was concluded from this study that there was seasonal effect on some characteristics of semen and had no effects on other characters.

Introduction

Shami goat is highly appreciated in Iraqi, There is a good demand for goat milk to manufacture cheese. This high demand for goat products encourages concentrated efforts to improve production and hence, the profitability of goat enterprises. One of the limiting factors in goat reproduction is seasonality in semen production and quality(1). Seasonal variation in semen quality differs in different countries(2). The aim of the present study was designated to show the effect of season on characteristics of semen in shami buck.

Materials and Methods

Six bucks of Shami breed, Aged 1.5- 2 years and weight 30- 50 Kg. presented in the farm of IPA Goat Station, Agurguf, Baghdad, Iraq, during the period from 1, January 2001, till the 1, January 2002. Semen were collected twice weekly by Artificial Vagina. And using goat injected 2.5 gm/ml (Estradiol Benzoate). After semen collection tube was but in incubator on 37°.

Semen quality parameters included Volume (ml), Mass Activity and Individual Motility (%), Sperm Count Per milliliter and Per Ejaculate ($\times 10^9$), Percentage Dead (%) and Abnormalities (%) (3). pH of the semen were also evaluated using pH meter CG 711, Germany.

Duncan multiple range test (4) and least- Squares analysis using the S.A.S Program (5) were used for statistical analysis.

Results and Discussion

The mean values of volume of ejaculate in different season were shown in Table.1. A significantly ($p < 0.05$) higher mean volume of ejaculate was observed in autumn (0.9 ± 0.616) ml than in winter (0.76 ± 0.531) ml and spring and summer. This results similar to those observed Barkawi,et.al.(6). The increase in volume of ejaculate in autumn could be due to seasonal variation in testicular sperm production. This might be due to changes in testicular size, the hypothalamic- pituitary mechanisms responsible for the seasonal testicular growth appear to be activated during increase day length(7,8).

Mass activity and Individual motility was shown to be higher during autumn (67.33 ± 32.501 , 69 ± 26.937)% and summer (66.33 ± 35.558 , 66 ± 36.554)%, as compared with winter and spring. This results agreement with several researchers (1,9). These results because of changes in photoperiodicity (10).

Sperm count per milliliter was shown to be higher during summer($2.03 \pm 1.165 \times 10^9$) than in spring, winter (1.84 ± 1.162 , 1.76 ± 1.046) $\times 10^9$ and autumn (1.59 ± 1.06) $\times 10^9$. This results agreement with several researchers(9,11). This increase of sperm count per milliliter in summer could be due improved nutrition may lead to improved libido and sperm production (7). The seasonal showed no significant on per ejaculate.

Percentages of dead was high during autumn (5.23 ± 4.161)% than in summer and winter (3.95 ± 4.079 , 3.39 ± 5.138)% and spring (0.027 ± 4.585)%. This results similar to those observed Kamal,et.al.(9). Increase of percentage of dead in autumn and summer could be due that environmental temperature plays a secondary role in terms of semen production compared to seasonal differences in photoperiod (10).

The seasonal showed no significant on pH of semen. This results similar to those observed El-Sharabassy,et.al.(12).

Abnormal spermatozoa was high in winter (0.49 ± 0.022)% and lower in spring, summer and autumn (0.02 ± 0.020 , 0.01 ± 0.019 and 0.01 ± 0.014)%. This results similar to those observed Perez and Mateos (1).

It was concluded from this study that season effects on Volume of ejaculate, Mass activity and Individual motility, Sperm count per milliliter, Percentages of dead and Abnormal spermatozoa of buck semen.

Table(1): Least square means \pm standard error of semen characteristics in different season of Shami buck

Seasonal	Semen characteristics							
	Volume (ml)	Mass activity (%)	Individual motility (%)	Sperm count ($\times 10^9$)	Sperm per ejaculate ($\times 10^9$)	Percent ages of dead (%)	pH semen	Abnormal (%)
Winter	0.76 \pm b0.531	31.12 \pm d28.42 8	53.88 \pm b30.22 7	1.76 \pm c1.046	1.74 \pm a0.954	3.39 \pm c5.138	6.5 \pm a3.16 4	0.49 \pm a0.022
Spring	0.5 \pm c0.680	39.89 \pm c36.58 9	41.38 \pm c38.35 6	1.84 \pm b1.162	1.618 \pm a1.412	0.027 \pm d4.585	6.6 \pm a3.81 1	0.02 \pm b0.020
Summer	0.48 \pm d0.534	66.33 \pm a35.55 8	66 \pm a36.55 4	2.03 \pm a1.165	1.743 \pm a1.351	3.95 \pm b4.079	6.5 \pm a3.76 1	0.01 \pm b0.019
Autumn	0.9 \pm a0.616	67.33 \pm a32.50 1	69 \pm a25.93 7	1.59 \pm d1.06	1.528 \pm a1.371	5.23 \pm a4.161	6.4 \pm a12.4 76	0.01 \pm b0.014

* Means with the same letters vertically differed and the means vertically the different letters differed significantly ($p < 0.05$).

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تأثير الموسم على صفات السائل المنوي في ذكور الماعز الشامي

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الخلاصة

استخدمت 6 من ذكور الماعز الشامي تراوحت أعمارها بين 1,5-2 سنة، لدراسة تأثير الموسم على صفات السائل المنوي، في محطة تحسين الماعز في عكر كوف التابعة لمركز إباء للأبحاث الزراعية للفترة من 2001/1/1 لغاية 2002/1/1. جمعت عينات السائل المنوي مرتين في الأسبوع بواسطة المهبل الاصطناعي. وأجريت الفحوصات التالية عليها: حجم القذفة (مل)، الحركة الجماعية والفردية للحيامن (%، تركيز الحيامن وتركيز الحيامن بالقذفة (مل)، الحيامن الميتة (%، الحيامن المشوهة (%، والأس الهيدروجيني (pH). لمعرفة الفروق المعنوية ($p < 0.05$) بين المواسم على صفات السائل المنوي.

لوحظ وجود فرق معنوي ($p < 0.05$) في حجم القذفة (مل) حيث ارتفعت في فصل الخريف $(0,616 \pm 0,9)$ مل وفي فصل الشتاء $(0,531 \pm 0,76)$ مل وانخفضت في فصلي الربيع والصيف. بينما لوحظ وجود فرق معنوي ($p < 0.05$) في الحركة الجماعية والفردية للحيامن (%) حيث ارتفعت حركة الحيامن في فصلي الخريف $(32,501 \pm 67,33)$ و $(25,937 \pm 69)$ % والصيف $(66,33 \pm 35,558)$ % وانخفضت في فصلي الشتاء والربيع. كما لوحظ وجود فرق معنوي ($p < 0.05$) في تركيز الحيامن حيث ارتفع تركيز الحيامن في فصل الصيف $(1,165 \pm 2,03) \times 10^9$ عن فصلي الشتاء والربيع $(1,046 \pm 1,76)$ و $(1,162 \pm 1,84) \times 10^9$ وانخفضت بصورة كبيرة في فصل الخريف. ولم يلاحظ وجود فرق معنوي ($p < 0.05$) لتركيز الحيامن خلال فصول السنة. أما نسبة الحيامن الميتة فقد لوحظ وجود فرق معنوي ($p < 0.05$) في فصل الخريف $(4,161 \pm 5,23)$ % عنه في فصلي الشتاء والصيف $(5,138 \pm 3,39)$ و $(4,079 \pm 3,95)$ % وانخفضت في فصل الربيع. بينما لم يلاحظ وجود تأثير معنوي على الأس الهيدروجيني. أما نسبة الحيامن الميتة فقد لوحظ وجود فرق معنوي ($p < 0.05$) بارتفاع نسبة الحيامن المشوهة في فصل الشتاء $(0,022 \pm 0,49)$ % عنه في فصل الربيع والصيف والخريف.

نستنتج من الدراسة أن للموسم تأثير على بعض صفات السائل المنوي في ذكور الماعز الشامي.