INFLUENCE OF CAMEL BREEDS AND AGES ON THE REPRODUCTIVE PERFORMANCE OF DROMEDARY CAMELS IN SAUDI ARABIA

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ABSTRACT

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To evaluate the reproductive performance of the camel herd at the Camel Research Center, records over 20 years were collected and analyzed. The effects of camel breeds and ages on the reproductive performance were included in the study. The results revealed that, the overall mean values of ages at first mating, conception and calving were 39.75±0.61; 41.82±0.64 and 54.39±0.64 months, respectively. The overall means of the corresponding body weights were 437.17±6.75, 450.16±7.57 and 519.03±6.86 kg, respectively. Camel breeds have a significant effect (P<0.05) on the body weight at first calving. The overall mean of the interval between services was 19.32±0.26 days, with no significant effects of camel breeds and ages. The overall period of post-partum heat was 45.39±2.57 days and was influenced significantly by camel breeds. The overall means of the service period and open days were 74.58±3.62 and 317.61±4.54 days, respectively, and both of camel breeds and ages had a significant effect on these criteria. Camel ages had significant effect on the number of services/conception and this indicated by medium ages (5-11 years) needs less service for conception than other ages. Service period and number of services/conception were significantly less during November to January mating months than that during February to April. The overall mean of calving interval was 19.70±0.34 months. Camel breeds and successive calving seasons had no significant effect on the calving interval. In conclusion, reproductive performance of Dromedary camels depends essentially on the camel breeds and ages.

***Key words**: Dromedary camels, reproductive performance, camel breeds.*

INTRODUCTION

The one-humped camel is a unique producer of food in the arid and semi-arid zones of the world. It is the only animal that can exist for several weeks without water and still able to provide its offspring and humans with milk (Yagil, 1982). The total population of camels in the world was estimated to be about 19 million, 14 million (73%) of which are in Africa and the Near East and 5 million (27%) in Asia (FAO 1992). The total population of dromedary is estimated to be around 1.6 million camels within the Arabian Peninsula, about 53% found in Saudi Arabia (FAO statistics, 2011). However, there is an important gap between the official number of camel heads according to FAO statistics (280,000 in 2009) and the national estimation published by the Ministry of Agriculture in Saudi Arabia (830,000 heads). Based on this last estimation, the camel population is 51% of the total tropical livestock in the country (Abdallah1 and Bernard Faye, 2012). The importance of camel in Saudi Arabia is clearly underlined by these data. Camels in Saudi Arabia play a major role in supplying the desert indwellers with milk and meat under extremely hostile conditions of temperature, drought and lack of pasture (Yagil and Etzion, 1980). Camel breeds derive their names from the areas of their habitats in dry and hot zones (North Africa, the North East and West Central Asia) as well as according to the tribe name (Wilson, 1984). A recent classification of camel breeds based on their economical traits was suggested by Wardeh (1989). Accordingly, Camels are assigned to four main classes: beef, dairy, dual purpose and racing camels. However, Saoud *et al.* (1988) and Basmaeil, *et al.* (2012) identified native camel breeds in the Saudi Arabia according to coat colors and production into Magahiem (black color, best milking breed); Maghatier (white color, moderate in milk production) Safrah (color mixture between the white and red) and Hamrah (color overlap between red and blond, more suitable for meat production than milk). The breeding of camels is at high risk because

of the slow reproduction rate (Dahl and Hjort, 1979). Full reproductive capacity of the female camel reached at 6 years (Singh, 1966; Khetami, 1970), but it can be bred at 3-5 years of age (Matharu, 1966; Williamson and Payne, 1978). Yasin and Wahid (1957) reported that the female camel would breed until 30 years of age.

The production and reproduction in camels are affected by many factors such as late puberty, restricted breeding season, induced ovulation, long gestation period and long calving interval. These factors may constitute a major reason for the long generation interval in camels. The present investigation aimed to study the reproductive performance of Saudi Arabian camels under intensive management system will shed more light on the influence of age and camel breeds on their reproductive performance traits.

MATERIALS and METHODS

The used records were collected from the farm of the camel station at the Camel Research Center at Sakaka, Al Jouf in the Northeastern part of Saudi Arabia. These records were used to evaluate the reproductive performance through measurement of the fertility parameters of Arabian camel under intensive controlled management. The reproductive parameters which tested in this study included, data of a total 197 female camel which collected from groups of sexually mature camels during consecutive breeding seasons over a period of 20 years (1985 to 2008). The animals were fed the available hay *ad-libidum* and 2-3 kg concentrate pellets (containing 16% crude protein, 2.5-3.0% crude fat, 4.9-8.5% crude fiber, calcium 0.69-0.7%, phosphorus 0.4% and salt 1%). During breeding season variable amounts of alfalfa were offered to the animals. Supplementary feeding in the form of whole dates and bran were also offered irregularly.

The studied reproductive performance includes the following traits which described by EL-Azab *et al.* (1997): (1) Ages (months) and weights (kg) at first mating, first conception and first calving, (2) Interval between services (days) within the same breeding season which annually starts at early November to late April and may extended to early May, (3) Post-partum period (days); period between calving to onset of the first heat, (4) Service period (days); period extended from calving to successful conception within the same breeding season, (5) Open days period (days); elapsed from calving to last successful service which extended to forthcoming breeding season, (6) Number of services/conception, (7) Calving interval (days); period between two consecutive calving's.

The influence of camel breeds and ages on these traits were studied. Obtained data according to available observations of reproductive traits were tabulated into 2 fixed factors (camel breeds and ages) and statistically analyzed using the SPSS version 9 for Windows statistical software package. The data was also subjected to analysis of variance using General Linear Model (GLM) procedure and post Hoc multiple comparisons for observed means by Duncan's test for performances in relation to the suggested factors.

RESULTS

As shown in Tables 1 and 2, the overall mean values of ages at first mating, conception and calving were 39.75±0.61; 41.82±0.64 and 54.39±0.64 months, respectively. The overall means of the corresponding body weights were 437.17±6.75, 450.16±7.57 and 519.03±6.86 kg, respectively. The results indicated that, the differences between the camels' breeds (Magahiem, Maghatier, Hamrah and Safrah) were not significant for the studied ages and body weights at first services and conception. However, Safrah camel breed had lesser ($P<0.05$) body weight (499.00±14.04 Kg) at first calving than other camel breeds.

The overall mean values of the interval between services were 19.72±0.51, 19.13±0.42, 19.56±0.78 and 19.50±0.50 days for Magahiem, Maghatier, Safah and Hamrah camel breeds, respectively, whereas, the mean values of the same criteria for camel ages ≤5, 5-7, 7-9, 9-11 and ≥11 years were 19.28±0.32, 18.78±0.63, 20.41±0.84, 19.34±0.84 and 18.93±0.90 days, respectively (Table 3). Camel breeds and ages have a non-significant effect on this trait.

The effect of camel breeds and ages on post-partum period are illustrated in Table (4). Results indicated that, Hamrah camel breed had significant ($P<0.05$) shorter period (36.83±3.73 days) than other breeds. However, no significant effect to camel ages on the post-partum period, and the overall period was 45.39±2.57 days.

The influences of camel breeds and ages on the service periods are illustrated in Table (5). Results indicated that, Hamrah camel breed had significant ($P<0.05$) longer period (93.21±7.42 days) than other breeds, at the same time, female camel ages ≥11 years old had significant ($P<0.05$) longer period (90.88±10.85 days) than other studied ages.

The effects of camel breeds and ages on the open days period are showed in Table (6). The open days period were affected by camel breeds and ages, where, Maghatier camel breed recorded longer ($P<0.05$) period (329.51±7.50 days) than other breeds, and the camel ages 5-7 years reported longer ($P<0.05$) periods (342.46±7.59 days) than other studied ages. The influences of camel breeds and ages on the No. of service/conception are illustrated in Table (7). The overall mean value of number of services/conception was 2.57±0.02 services. Results indicated that, female

camels ages had significant effect (P<0.05) on the number of service/conception and this indicated by medium ages (7 to 9 years) needs less services for conception (2.05±0.20), on the other hand younger (≤5 years) and older ages (≥11 years) needs more services for conception (2.88±0.17 and 2.81±0.27, respectively). However, the camel breeds had no significant effect on this trait.

Measurement of calving interval is an important as a herd performance monitoring tool. As depicted in Table (8), the overall mean of calving interval was 19.70±0.34 months; and no significant differences in the calving interval between camel breeds and successive calving seasons. However, camel ages show substantial difference in the calving interval, as she-camels age advanced the interval increased and this phenomenon was denoted up to the 6th calving season (Table 8). Calving interval distribution among she-camel population is shown in Fig. (1). The calving interval classes were <15, 15-17, 18-20, 21-23 and >24 months and the corresponding percentages were 7.27%, 17.27%, 35.46%, 31.82% and 8.18% of the she-camels, respectively.

Table 1: Influence of camel breeds on the ages at first service, conception and calving (Mean±SE)

Camel Breeds	No. of observations	Ages (Months)		
		1st Service	1st Conception	1st Calving
Magahiem	38	41.21±1.34	42.90±1.41	55.53±1.41
Maghatier	60	39.33±1.07	40.77±1.13	53.36±1.12
Safrah	46	40.09±1.22	42.65±1.28	55.21±1.28
Hamrah	44	38.36±1.25	40.96±1.31	53.48±1.31
Overall	188	39.75±0.61	41.82±0.64	54.39±0.64

Table 2: Influence of camel breeds on the body weight at first service, conception and calving (Mean±SE)

Camel Breeds	No. of observations	Body weights (kg)		
		1st Service	1st Conception	1st Calving
Magahiem	14	442.57±15.66	456.29±17.58	504.57±15.92 [ab]
Maghatier	44	444.77±8.84	460.41±9.91	530.05±8.98 [ab]
Safrah	18	439.44±13.81	445.56±15.50	499.00±14.04 [b]
Hamrah	16	421.88±14.65	438.38±16.44	542.50±14.89 [a]
Overall	92	437.17±6.75	450.16±7.57	519.03±6.86

Means in the same column with different superscripts differ significantly (P<0.05).

Table 3: Influence of camel breeds and ages on the interval between services (Mean±SE)

Ages	No. of observations	Camel Breeds (Number of observations)				Overall (n=687)
		Magahiem (n=186)	Maghatier (n=238)	Safrah (n=90)	Hamrah (n=173)	
≤5	339	18.55±0.82	19.37±0.63	19.46±0.92	19.57±0.66	19.28±0.32
5-7	105	17.93±1.65	19.22±0.89	19.58±1.84	17.65±1.55	18.78±0.63
7-9	90	21.86±1.20	18.88±1.11	18.00±4.51	21.29±1.55	20.41±0.84
9-11	72	20.09±1.13	18.92±1.84	21.00±2.02	16.62±1.77	19.34±0.84
≥11	81	20.61±1.20	18.17±1.50	18.20±2.85	17.45±1.43	18.93±0.90
Overall	687	19.72±0.51	19.13±0.42	19.56±0.78	19.50±0.50	19.32±0.26

Table 4: Influence of camel breeds and ages on the post-partum period (Mean±SE)

Ages	No. of observations	Camel Breeds (Number of observations)				Overall (n=108)
		Magahiem (n=25)	Maghatier (n=32)	Safrah (n=26)	Hamrah (n=25)	
≤ 5	23	34.67±12.11	38.67±8.57	42.00±12.11	29.00±12.11	36.29±5.05
5-7	20	70.00±12.11	51.00±12.12	51.00±12.11	33.33±12.00	51.33±6.34
7-9	22	45.00±12.11	40.67±12.00	32.00±14.84	35.40±9.39	38.31±4.54
9-11	21	58.00±12.11	58.00±12.17	69.00±12.11	31.00±12.00	54.00±6.61
≥ 11	22	51.67±12.00	40.00±12.12	58.00±9.39	48.50±14.84	50.92±5.21
Overall	108	48.67±4.51[a]	46.64±5.44[ab]	52.74±4.38[a]	36.83±3.73[b]	45.39±2.57

Means in the same row with different superscripts differ significantly (P<0.05).

Table 5: Influence of camel breeds and ages on the service periods/days (Mean±SE)

Ages	No. of observations	Camel Breeds (Number of observations)				Overall (n=197)
		Magahiem (n=39)	Maghatier (n=44)	Safrah (n=56)	Hamrah (n=58)	
≤ 5	52	45.00±15.35	48.14±12.97	70.00±15.35	87.44±11.44	65.35±6.38[b]
5-7	50	75.00±17.16	44.00±15.35	82.88±12.14	100.88±12.14	79.60±8.05[ab]
7-9	40	73.50±17.20	86.00±17.18	51.75±17.16	95.25±12.10	80.35±8.17[ab]
9-11	30	82.75±17.16	56.67±19.82	43.00±15.35	66.00±19.82	60.93±7.20[b]
≥ 11	25	82.40±21.71	113.67±19.82	73.33±14.01	149.00±34.33	90.88±10.85[a]
Overall	197	69.54±7.41[b]	64.18±7.62[b]	66.96±5.80[b]	93.21±7.42[a]	74.58±3.62

Means in the same column with different superscripts differ significantly (P<0.05).
Means in the same row with different superscripts differ significantly (P<0.05).

Table 6: Influence of camel breeds and ages on the open days period (Mean±SE)

Ages	No. of observations	Camel Breeds (Number of observations)				Overall (n=272)
		Magahiem (n=46)	Maghatier (n=81)	Safrah (n=63)	Hamrah (n=82)	
≤ 5	78	300.71±17.32	345.88±12.96	343.54±13.23	282.60±16.73	324.89±7.28[bc]
5-7	55	365.40±28.97	356.40±14.49	336.29±17.32	323.25±16.20	342.46±7.59[c]
7-9	45	305.40±28.97	262.75±22.91	275.80±28.97	327.00±22.91	293.23±17.59[ab]
9-11	44	297.50±32.39	301.40±28.97	315.86±24.49	227.67±21.60	278.28±16.62[a]
≥ 11	50	282.80±28.97	317.65±13.51	299.92±17.97	327.22±21.59	311.28±8.43[ab]
Overall	272	308.12±12.20[ab]	329.51±7.50[b]	324.48±7.30[ab]	297.82±8.63[a]	317.61±4.54

Means in the same column with different superscripts differ significantly (P<0.05).
Means in the same row with different superscripts differ significantly (P<0.05).

Table 7: Influence of camel breeds and ages on the number of services/conception (Mean±SE)

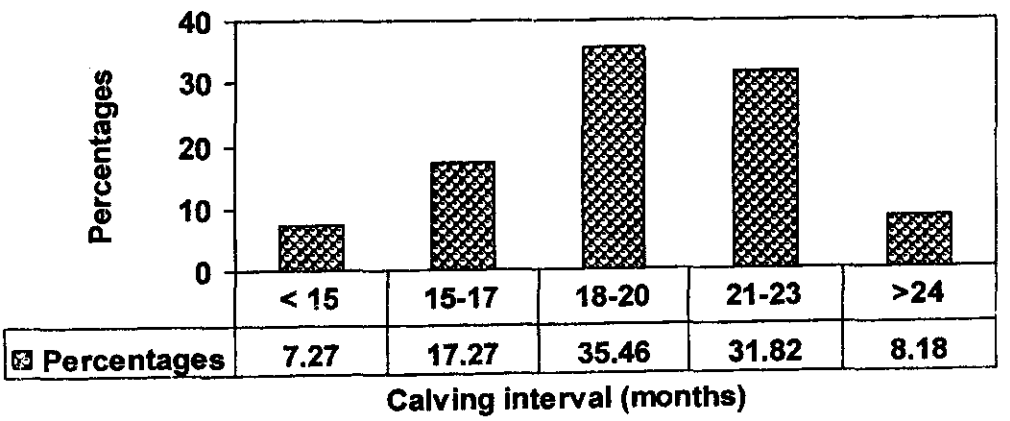
Ages	No. of observations	Camel Breeds (no. of observations)				Overall (n=319)
		Magahiem (n=62)	Maghatier (n=87)	Safrah (n=82)	Hamrah (n=88)	
≤ 5	121	2.92±0.48	2.76±0.26	2.37±0.33	3.39±0.29	2.88±0.17 [b]
5-7	74	2.53±0.45	2.42±0.35	2.19±0.43	2.21±0.40	2.34±0.18 [ab]
7-9	43	2.44±0.58	2.36±0.46	1.13±0.61	2.00±0.50	2.05±0.20 [a]
9-11	34	2.78±0.58	2.18±0.53	2.43±0.66	1.86±0.66	2.32±0.29 [ab]
≥ 11	47	3.14±0.66	3.27±0.45	2.33±0.45	2.60±0.55	2.81±0.27 [b]
Overall	319	2.57±0.22	2.61±0.15	2.16±0.18	2.72±0.20	2.57±0.02

Means in the same column with different superscripts differ significantly (P<0.05).

Table 8: Influence of camel breeds and calving seasons on the calving interval/months (Mean±SE)

Successive Calving Seasons	No. of Animals	Camel Breeds				overall mean (n=110)
		Magahiem (n=19)	Maghatier (n=38)	Safrah (n=27)	Hamrah (n=26)	
2nd	25	18.29±1.31	21.06±1.15	19.40±1.55	18.38±1.73	19.52 ±1.04
3rd	22	18.33±1.73	19.74±1.15	18.19±1.31	20.17±2.45	19.03 ±0.51
4th	29	18.50±3.46	18.80±1.10	19.03±3.14	19.50±1.10	19.09 ±0.46
5th	12	22.80±1.73	21.87±2.00	20.40±2.45	16.73±2.00	20.55±1.03
6th	13	17.89±2.00	22.83±1.41	19.92±2.45	25.67±2.45	21.68±0.95
≥7th	9	No Data	20.86±2.00	20.28±2.00	19.09±1.55	19.69 ±0.70
Total	110	19.19±1.00	20.49±0.56	19.19±0.67	19.46±0.56	19.70±0.34

Fig.(1): Distribution of calving percentages



DISCUSSION

The reproductive function beginning by onset of puberty is affected remarkably by change in body weight. Attainment of puberty is influenced by the overall growth and weight of the animal which in turn is affected by nutrition (Marai *et al.*, 2007). Ages at first service, conception and calving may constitute major reasons for the long generation interval in camels. In the present study, the overall mean values of ages and weights at first mating, conception and calving were 39.75, 41.82, 54.39 months; 437.17, 450.16 and 519.03 kg, respectively. These results were in agreement with those reported in different countries as Magrebi Arabia, where the age at first conception and first calving were reported to be 37 and 49.4 months, respectively (Sghiri, 1988). Moreover, Mounir and Borni (2012) recorded age of first successful mating of Maghreby Negga camel varied between 33 to 48 months with an average of 39 months and the age at first parturition varies from 32-68 months. In Turkmenistan, Arvana camels mated for the first time at 3 years of age and 350-400 kg of live weight (Dmitriez and Ernst, 1989). In the Sudan, 66.7% of the female camels were bred at 3 years of age (Abbas and Musa, 1989). In the United Arab Emirates, ages at first service and calving were 43.1±0.58 and 55.3±2.87 months, respectively (Aboul-Ela 1991). In Libya, ages at first service and first calving were 36.9±1.10 and 50.3±1.28 months, respectively (Hermas and Shareha, 1991). In contrast, the current findings were less than 61-62 months which were reported for Bikaneri camels as age at first calving (Beniwal and Chaudhry, 1984 and Khanna *et al.*, 1990). Moreover, in Pakistan (Yasin and Wahid, 1957); Indian (Khanna *et al.*, 1990); Sudan (Köhler -Rollefson *et al.*, 1990); Horn of Africa (Hartley, 1984) and Kenya (Karimi and Kimenye, 1990) the she-camels were reported to reach puberty at 4-5 years of age. The variation in these observations may be related to feeding and management and/or breed differences. However, the onset of puberty is remarkably independent on body weight. Therefore, dromedary camels reproductive performance in terms of age at puberty, at first conception and at first birth can be improved by ensuring adequate nutrition in early life and improvement of managerial and environmental conditions as well as by using hormonal treatment that can assist early sexual development and breeding maturity (Arthur and Al-Rahim, 1982; Simpkin, 1987; Zaied, 1991; Formigoni *et al.*, 1996; Mounir and Borni, 2012).

The overall mean of the interval between services within the same breeding season which starts at early November to late April was 19.32±0.26 days. The present findings agree with those recorded by EL-Azab *et al.* (1997) where the mean interval between services within the same breeding season was 15.83±0.39 days.

The overall period from calving to first onset heat (postpartum period) was 45.39±2.57 days. Similarly, other studies indicating that the postpartum heat occurs 14-30 days after calving (Novoa, 1970; Evans and Powys, 1979; Abdel-Rahim and El-Nazier, 1992) and between 10-72 days with mean 26.34±1.89 days for Magarabi female camels (EL-Azab *et al.*, 1997). In this study, it has been observed that the majority of female camels calved at the beginning of a breeding season came into the first postpartum heat after 13-103 days after calving within the same breeding season. It is importance to notice that in camels even with the early induction of heat after calving, the majority of females fail to conceive within the same breeding season, and this might be due to the effects of lactation, feeding status of the animals, body weight and conformation and feed availability (Shalash 1965; Shareha *et al.*, 1982; Arthur, 1992; Mounir and Borni, 2012).

The overall mean of service periods was 74.58±3.62 days, came relative to value 51.9±12.1 days which recorded by Hermas and Shareha (1991) in Magrebi camel. In the present study, The overall mean of open days herein was 317.61±4.54 days, in accordance with EL-Azab *et al.* (1997) and Hermas (1990), whereas open days period elapsed from calving to conception for Magarabi female camel were 308.02±6.95 days and 286.80±12.70 days. However, a recent study recorded shorter interval (147±131 days) between calving to successful mating of Maghreby Negga camel (Mounir and Borni, 2012).

The overall mean value of the number of services/conception was 2.57±0.02 services. Similarly, in Libya, Hermas and Shareha (1991) reported that services/conception was 1.84±0.15, while in United Arab Emirates, Aboul-Ela (1991) showed that the services/conception were 1.63±0.16 and the conception percentage occurred from first service was 58% and only 20% of she camels required ≥3 services before pregnancy. In this study and from the available observations it has been observed that in Saudi Arabia, camels' breeding season is started from early November to late April and it may extend to early May. During this period both males and females are fertile. On the other hand, summer months (July to September) are considered as a non-breeding season for local camel breeds (male and female) and the reproductive activities of camels were affected adversely by the heat stress and the function of the high ambient temperature (Habeeb *et al.*, 1992; Marai and Habeeb, 1998 and Marai *et al.*, 2002).

Long calving intervals are the most major factor contributing to poor reproductive performance of camels. Under extensive management system calving interval lasts for more than 24 months (Evans and

Powys, 1979). However, the calving interval of camels may reach eighteen months, similar to that of cows (Knoess, 1976). The overall mean of calving interval was 19.70±0.34 months; and no significant difference in the calving interval between camel breeds and successive calving seasons. These results are in agreement with that reported by Basmaeil *et al.* (1994) in Saudi Arabia where the calving interval for five successive breeding seasons was 20.58±0.82 months. Similarly, Mounir and Borni, (2012) cited that, the intervals between calving of Maghreby Negga camel was 526±145 days. Moreover, Dmitriez and Ernst (1989) in Turkmenistan obtained in their study 2 calves/3years. As well as, in Kenya, Evans and Powys (1979) observed an average calving interval of 22 months if young survives. In the same purport, the present findings were longer than those reported by Richard *et al.* (1985) in Niger (15.0 months); Mosleh (1991) in Tunisia (13.45±0.27 months) and Köhler-Rollefson (1991) in Sudan (14-15 months). In contrast, the present calving interval was shorter than those recorded by Aboul-Ela (1991) in United Arab Emirates (24.4±0.68 months); Khanna *et al.* (1990) in Indian (25.73±0.27 months); Hermas and Shareha (1991) in Magrebi Arabia countries (22.62±0.40 to 24.0±8.2 months); Dioli (1991) in East Africa (24.0 months); Aslam *et al.* (2002) in Pakistan (23.5±1.33 months); Schwartz *et al.* (1983) in Kenya (28 months) and Herren (1993) in Somalia (29 months). The disagreement of these observations was attributed to differences in she camels' gestation length and seasonality of breeding (Wilson, 1984 and Arthur *et al.*, 1985); late post-partum estrus (Mukasa-Mugerwa, 1981) and individual variation in open days period (Aboul-Ela, 1991).

Among the studied camel herd, the calving interval distribution classes were <15, 15-17, 18-20, 21-23 and >24 months with corresponding percentages were 7.27%, 17.27%, 35.46%, 31.82% and 8.18% of the she-camels, respectively. Similarly, in Mali, Swift (1979) reported that, 20.9%, 27.9%, 44.2% and 7.0% of a herd of she-camels showed calving intervals of ranges 12-15, 16-23, 24-25 and >25 months, respectively. Also, in United Arab Emirates, Aboul-Ela (1991) indicated that the intervals between calving is <20 months for 14.4% of she-camels. Moreover, in Kenya, Bremaud (1969) demonstrated, 11.5%, 3.9%, 53.5% and 30.8% of she-camels herd with calving intervals 12-15, 16-23, 24-25 and >25 months, respectively. Herren (1993) reported that in Somalia a period of 28 months was estimated as a calving interval in 35-40% of a herd of she-camel. Generally, the current calving interval showed 3 types of calving intervals. Short calving intervals of the average 14 months that was observed to correlate with breeding female camels aborted at late stage of pregnancy and in cases of calf death after delivery. In this case, the dam was submitted to a bull camel for conception within one month. The medium calving interval (between 16 and 18 months) was seen when the female camels delivered at the beginning of the breeding season, and calves were weaned as early as 75 days of age, and their dams were rebred and became pregnant at the end of the same season. Long calving interval (≥23 months) was observed when the female camels were kept milking to satisfy the milk demand of the calves.

CONCLUSION

Reproductive traits, in terms of post-partum period, service period and open days are dependent on the camel breeds, and this indicates the importance of heritability as a value that express and measure average additive gene effect. However, further research is needed to determine the correlation between genetic merits of camel breeds and total productivity including reproductive performance, which may be better in some camel breeds than others.

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تأثير سلالة الابل والعمر على الأداء التناسلي للابل وحيدة السنام فى السعودية

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تعتبر الابل العربية وحيدة السنام هى المصدر الوحيد للحليب واللحوم فى المناطق الصحراوية الحارة القاحلة، حيث أن الابل تتحمل الجوع والعطش لفترات طويلة وفى نفس الوقت ترضع مولدها وتمد مربيها بالحليب المطلوب لحياتهم مما جعل لها أهمية خاصة لدى المربين والبدو فى هذه المناطق. ويوجد فى المنطقة العربية سلالات مختلفة من الابل تتفاوت فيما بينها فى الانتاج والكفاءة التناسلية، ونظرا لأن طبيعة تواجد الابل وتربيتها تعتمد الى حد كبير على وجود المراعى الطبيعية والتى تنتشر بكثافات متنوعة وتختلف من مكان لأخر مما جعل مربى الابل ينتقلون بحيواناتهم ويمشون مسافات واسعة بحثا عن المراعى، أدى ذلك الى قلة الدراسات وندرة الأبحاث التى تعطى صورة واضحة للكفاءة التناسلية للابل نظرا لأنها لا تتواجد فى تجمعات محدودة المكان تمكن مربيها الاهتمام بها وتمكن الباحثين من مراقبتها ومتابعتها وتسجيل بياناتها مثل باقى الماشية، يضاف الى ذلك موسمية التناسل وتأخر سن البلوغ والنضوج الجنسى وطول مدة الحمل والفترة بين ولادتين، لذلك استهدفت هذه الدراسة القاء المزيد من الضوء والمعرفة على الكفاءة التناسلية للابل وحيدة السنام تحت نظام التربية المكثفة ومعرفة مدى تأثير السلالة والعمر على الأداء التناسلى، لذلك تم حصر أربعة سلالات (مجاهيم ، مغاثير ، صفراء ، حمراء) وخمسة مراحل عمرية (أصغر من ٥ سنوات ، ٥-٧ ، ٧-٩ ، ٩-١١ ، أكبر من ١١ سنة) من خلال سجلات التناسل لقطيع الابل المرباة فى مركز أبحاث الابل والمراعى لأكثر من ٢٠ سنة. ولتحقيق أهداف الدراسة تم تجميع واستخلاص البيانات الخاصة بالتناسل بداية من عمر ووزن الحيوان عند أول تلقيح وأول اخصاب وأول ولادة ومتابعة الفترة الزمنية بين الولادة وأول شياع بعد الولادة واخر تلقيحة مخصبة بعد الولادة، كذلك الفترة الزمنية بين الولادات ثم اجريت تنقية للبيانات من القراءات الشاذة والمجهولة تلتها تحليل لها احصائيا باستخدام برنامج **SPSS** الاحصائى. اسفرت النتائج أن المتوسط العام لعمر النوق والوزن عند أول تلقيح وأول اخصاب وأول ولادة كان ٣٩,٧٥ ، ٤٣٧,١٧ و٤١,٨٢ ، ٤٥٠,١٦ و ٥٤,٣٩ شهرا ، ٥١٩,٠٣ كجم على التوالي، ولم توجد فروق معنوية لتأثير السلالة على هذه الخصائص. بلغ المتوسط العام للفترة الفاصلة بين التلقيحات ١٩,٣٢ يوما ولم يوجد تأثيرا معنويا للعمر ولا للسلالة على هذه الخاصية. فى حين أن المتوسط العام للفترة بين الولادة وأول شياع كان ٤٥,٣٩ يوما وفى الوقت الذى لم يكون للعمر تأثير على هذه الخاصية كان لسلالة النوق تأثيرا معنويا عليها. بلغت الفترة الزمنية بين الولادة وحتى حدوث اخصاب فى نفس موسم الولادة أو الموسم الذى يليه ٧٤,٥٨ و ٣١٧,٦١ يوما على التوالي، وقد كان لأعمار النوق وسلالتها تأثيرا معنويا على هذه الخصائص. بالنسبة للمتوسط العام لعدد التلقيحات اللازمة لحدوث الحمل فقد بلغ ٢,٥٧ تلقيحة وفى الوقت الذى لم يكون لسلالة النوق تأثير على هذه الخاصية كان لأعمارها تأثير واضحا، وقد ظهر هذا جليا عندما احتاجت النوق ذات الأعمار المتوسطة (٧-٩ سنوات) أقل عدد من التلقيحات (٢,٠٥) مقارنة بالأعمار الصغيرة (أقل من ٥ سنوات) والكبيرة (أكثر من ١١ سنة) والتى احتاجت ٢,٨٨ و ٢,٨١ تلقيحة على التوالى. وبشكل عام فان عدد التلقيحات اللازمة لحدوث حمل كانت أقل فى الشهور من نوفمبر وحتى يناير من التي تمت في فبراير وحتى ابريل. بلغ المتوسط العام للفترة البينية بين الولادات ١٩,٧٠ شهرا ولم تكون للسلالة أو لعدد الولادات تأثيرا معنويا عليها، وقد وجد أن أكثر من ٦٥% من النوق التي خضعت للدراسة كانت الفترة البينية للولادات تتراوح ما بين ١٨ الى ٢٣ شهرا. خلاصة الدراسة أثبتت ان سلالات النوق وأعمارها تؤثر على الأداء التناسلي للابل العربية وحيدة السنام مما يلفت النظر الى أهمية السلالة فى برامج التربية والتلقيح والتي يمكن أن تتناولها دراسات مستقبلية كنقطة انطلاق للتحسين الوراثي للكفاءة التناسلية فى الابل.