

Original Research

Reproductive potential of Algerian she-camel for meat production - A Case of the Region of Souf

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ABSTRACT:

The current research was done to study the reproductive performances of Algerian she-camel for meat production. The study was conducted from March 2006 to May 2016 in Souf region; southeast of Algeria where a total of 71 camel herders were randomly selected for data collection using a questionnaire tool. The study revealed that all camel herders bred camels only for meat production by keeping high breeding rates of females in herds. The survey showed that she-camel Sexual activity Took place in the rainy season extending from October to the beginning of May and intensified between December to January. The mean age at first mating, first calving and gestation length were  $45.8 \pm 0.77$ ,  $58 \pm 0.76$  and  $12.1 \pm 0.03$  months respectively. Calving interval and lactation length were  $22.1 \pm 0.51$  and  $13.6 \pm 0.56$  months respectively. The mean age at culling was  $22.7 \pm 0.47$  years. The average number of births during a reproductive lifespan was  $7.33 \pm 0.21$  calves. The mean birth weight was  $20.9 \pm 0.49$ kg. Due to their low reproductive performances, camels are not good suppliers of meat. Reducing age at first parturition and calving interval seems to be a good solution that has to be recommended for better meat productivity.

Keywords:

Algeria, Meat, Productivity, Reproduction, Southeast, She-camel.

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## INTRODUCTION

By making the best use of pastoral areas in the Saharan territory, the dromedary is by excellence the only species to adapt to the local ecological roughness and remains the only animal converter of lean vegetation into vital products (Senoussi, 2011). Meat is the main speculation among camel products (Benyoucef and Bouzegag, 2006).

Camels are used in North Africa mainly for meat purpose (Faye 2015). However, owing to their poor reproductive performance, camels are not efficient for producing meat. (Tefera and Gebreah, 2001). For that purpose, the present study aims to study and characterize some reproductive performances of Algerian she-camel within the Souf region in order to improve camel meat productivity.

## MATERIALS AND METHODS

### Study area

The study area is represented by Souf region which is located in the South-East of Algeria, 600Km of the capital Algiers. It is on the northern borders of the Eastern Erg (33° to 34° N and 6° to 8° E). It is bordered to the east by the huge Tunisian Chott El-Djerid, to the north by Merouane, Melghir and Rharsa chotts, to the west by the chotts of Oued R'high and to the South by Ouargla (Voisin, 2004). The region is at an average altitude of 80 m, showing a notable decrease from south to north to be at 25 m below sea level in the Melghir chott, which occupies the bottom of the immense basin of the lower Sahara (Najah, 1971). This region was chosen as it contains the biggest camel numbers in Algeria (Figure 1).

### Sampling and data collection

The study was undertaken from March 2016 to May 2016. A total of 71 camel herders were randomly selected for data collection using a questionnaire tool.

The questionnaire was divided into two parts

Part 1 - To give a brief overview on socioeconomic

characteristics of camel herders: sex, age, education level, camel rearing purpose etc.,

Part 2 - To survey reproductive parameters of she-camel: age at the first mating, pregnancy length, age at first parturition, calving interval, the average age at culling, average weight at birth, lifetime calf production and lactation length. The average duration of the interview was 40 min per herder.

### Data analysis

The data were analyzed, using computer software SPSS (Statistical Package for Social Sciences) version 18 (SPSS, 2017).

## RESULTS AND DISCUSSION

### Socio-economic characteristics of camel herders

#### Herders

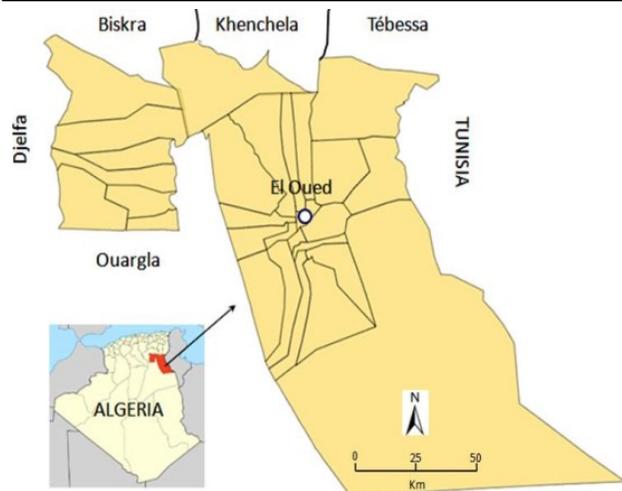
The current results showed that camel herders were all male with an advanced mean age of 56.2 years ranged between 26 to 84 years. Almost 80.3% of respondents were illiterate while 15.5% had formal education and 4.20% had Islamic education. Almost all of herders (91.5%) acquired their camels by inheritance and only 8.50% obtained camels through purchase. For the majority of respondents 78.9%, camel rearing was their main activity followed by those whose main activity is both camel rearing and farming representing 19.7%. Farming was the main activity for a single respondent.

#### Camel herd size and composition

The study revealed that all camel herds were made up of the Sahraoui population. The average herd size was 46.4 heads varied between 3 to 205 heads. The majority (77.41%) of herds were breeding females, while the breeding males and young camels represented 2.27% and 20.31%, respectively.

#### Camel rearing system and rearing purpose

All respondents in the study area adopted the extensive system of management to raise their camels. The herds feed mainly based on the valorization



**Figure 1. Location of the study area**



**Figure 2. Camels on rangelands**

of natural resources available on rangelands. All herders reported breeding their camels for meat production purpose because it is the only marketed product. Milk is a by-product of meat production; all camel herders in the surveyed area do not sell milk due to their socio-cultural heritage against selling milk (Figure 2).

**Reproductive parameters of she-camel**

The reproductive parameters of she-camel are shown in Table 1. A single breeding season was identified in the study area. All respondents reported that camel sexual activity took place in the rainy season extending from October to the beginning of May and intensified between December to January. This finding was supported by the results highlighted by many research reports (Yagil, 1982; Lahlou-Kassi *et al.*, 1989;

Moslah *et al.*, 2004; Mayouf *et al.*, 2014; Gebissa 2015).

The majority 74.6% of herders mentioned that heifers get mated for the first time at the age of 48 to 60 months, while 26.4% of respondents gave 36 months as age at first mating. This difference may be due to food supplements which lead to the early sexual maturity of heifers. An average age at first mating of 45.8 months was recorded in this study and corresponds to what was reported by Titaouine (2006) and Abdussamad *et al.* (2011), while Tolera and Abebe (2007) recorded 52.8 months in Ethiopia.

In agreement with the results reported by Zarrouk *et al.* (2003) and Almutairi *et al.* (2010), the study showed that mean pregnancy period was 12.1 months. For all respondents she-camel gives birth to a single calf that is no twinning birth has been reported.

**Table 1. Descriptive analysis of some she-camels reproduction parameters in the study area (n = 71)**

S. No	Variables	Mean	SEM	Minimum	Maximum
1	Age at first mating ( months)	45.8	0.77	36	60
2	Pregnancy length (months)	12.1	0.03	12	13
3	Age at first calving (months)	58	0.76	48	72
4	calving interval (months)	22.1	0.51	12	24
5	Average age at cull (years)	22.7	0.47	15	30
6	Average weight at birth (months)	20.9	0.49	15	30
7	Lifetime calf production (months)	7.33	0.21	04	11
8	Lactation period (months)	13.6	0.56	6	36

This is in accordance with what was mentioned by Jaji *et al.* (2017) in Nigeria. The average birth weight was 20.9 kg ranged between 15 to 30 kg less than those reported by Wilson (1978), Hammadi *et al.* (2001) and Hertrampf (2004) who stated 35 kg, 27 kg and 25.8 kg, respectively.

The mean age at first calving was 58 months as reported in Wilson survey (1984) and higher than what was indicated by Abbas *et al.* (2000) who recorded 52 months. A calving interval of 24 months was recorded by the majority (84.5% of respondents) while, a 12-months interval was indicated by 15.5% of herders. An average calving interval of 22.1 months was recorded in this study. Similar duration was reported by Keskes *et al.* (2013) and Mayouf *et al.* (2014).

According to Moslah (1993) in the traditional breeding management, the number of calves per she-camel cannot exceed seven products in the measure when it made its first conception at the age of five years and it finishes its reproductive lifespan at the age of 17 years and without any abortion. In this study the average number of calves per she camel per reproductive lifespan was 7.33 not far from the results reported by Tefera and Gebreah (2001) who noted eight products and lower than what was reported by Mehari *et al.* (2007) who stated 10 calves. The mean age at culling was 22.7 years whereas Titaouine (2006) recorded 16 years in the same study region. The mean period of lactation in this study was 13.6 months, varying between 6 and 36 months while Abdelgadir *et al.* (2013) indicated 12.5 months as an average lactation length ranged from 6 to 19 months.

## CONCLUSION

The aim of this study was to identify and characterize some reproductive performances of the Algerian she-camels in Souf region in order to improve camel meat productivity. The study reported that camels are not good suppliers of meat; she-camels were

characterized by a long cycle of rotation translated by late age at first parturition, long conception period and long calving interval. Reducing age at first parturition and calving interval seems the solution to be recommended for better meat productivity.

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