

PROSPECTIVE STUDY ON CAMEL BREEDING IN THE PROVINCE OF BECHAR

BOUKERT Razika^{1,2*}, SAIDJ Dahia^{1,3}, BEKKI Mohammed Yassine¹, SAHRAOUI Naima^{1,2}

¹ *Veterinary Sciences Institute, Saad Dahleb University Blida -1*

² *Laboratory of Biotechnologies related to Animal Reproduction, Veterinary sciences institute, Saad Dahleb University Blida -1-, Algeria.*

³ *Health and Animal Productions Laboratory SPA, High National Veterinary School, Oued Smar, Algiers, Algeria.*

Abstract

A prospective study on camel breeding was carried out in the province of Bechar from January to May 2023. For this, we consulted the logs of the agricultural services department, and a questionnaire was sent to 10 camel farmers in order to identify several parameters such as: breeding system, camel population, feeding and the main parameters of camel reproduction. Our results showed an estimated camel population of 12 243 head spread over 6 communes, with a large number (3865; 31.65%) in Abadla and a small number (149; 1.21%) in Knadssa. According to (62%) of camel breeders, the type of livestock system most practised in the Bechar region is semi-sedentary. Five camel populations were observed in the study area. (85%) of survey respondents indicated that camels use wood resources. A higher rate of water frequency (60%) was observed in summer. Concerning reproductive parameters, (84%) of camel breeders said that females are bred at the age of 3 years, whereas (56%) indicate that males are bred later at the age of 5 to 6 years. However, (67%) of camel breeders indicate that the period of the calving interval is between 1 and 2 years, (88%) say that weaning is between 7 and 8 months and (75%) report that dry-off is at 8 months of lactation period. Finally, our study has clarified the main characteristics of camel breeding in the wilaya of Bechar. Other studies on this subject should be set up in other regions of southern Algeria.

Key words: Camel breeding, Dromedary, Questionnaire, Bechar, Algeria.

ETUDE PROSPECTIVE SUR L'ELEVAGE CAMELIN DANS LA WILAYADE BECHAR

Résumé

Une étude prospective sur l'élevage camelin a été réalisée dans la province de Bechar de janvier à mai 2023. Pour ce faire, nous avons consulté les registres de la direction des services agricoles, et un questionnaire a été envoyé à 10 éleveurs de dromadaires afin d'identifier plusieurs paramètres tels que : le système d'élevage, la population de dromadaires, l'alimentation et les principaux paramètres de la reproduction des dromadaires. Nos résultats ont montré une population de chameaux estimée à 12 243 têtes réparties sur 6 communes, avec un grand nombre (3865 ; 31,65%) à Abadla et un petit nombre (149 ; 1,21%) à Knadssa. Selon (62%) des éleveurs de dromadaires, le type de système d'élevage le plus pratiqué dans la région de Bechar est le semi-sédentaire. Cinq populations de chameaux ont été observées dans la zone d'étude. (85% des personnes interrogées ont indiqué que les chameaux utilisent les ressources en bois. Un taux plus élevé de fréquence d'abreuvement (60%) a été observé en été. En ce qui concerne les paramètres de reproduction, 84% des éleveurs de chameaux déclarent que les femelles sont accouplées à l'âge de 3 ans, tandis que 56% indiquent que les mâles sont accouplés plus tard, à l'âge de 5 ou 6 ans. Cependant, (67%) des éleveurs de dromadaires indiquent que la période de l'intervalle de vêlage est comprise entre 1 et 2 ans, (88%) disent que le sevrage est compris entre 7 et 8 mois et (75%) rapportent que le tarissement est à 8 mois de la période de lactation. Enfin, notre étude a permis de préciser les principales caractéristiques de l'élevage camelin dans la wilaya de Bechar. D'autres études sur ce sujet devraient être mises en place dans d'autres régions du sud algérien.

Mots clés : Elevage camelin, Dromadaire, Questionnaire, Bechar, Algérie.

Introduction

For centuries, the dromedary has been considered an animal of great importance in the desert regions of the world, due to its ability to withstand extremely harsh conditions. Camel husbandry in Algeria occupies an important place within the Saharan community, with a headcount of approximately 416519 (FAO, 2019). While camels may not be the primary domesticated animal, they play a crucial role in providing nutrition for nomadic and urban dwellers, as well as completing various other functions (Saidi et al., 2021). Camels also serve as a vital source of sustenance, supplying milk and meat (Duricic et al., 2020). Its social importance is also linked to the ancestral customs of these regions (folklore, racing, etc.) (Bouallala et al., 2013). They are also a vital ecological component in desert ecosystems (BoudjenahHaroune, 2012). Dromedary breeding is one of the main activities of the Saharan rural population, to meet local needs for products of pastoral origin (Senoussi, 2012). The development of dromedary breeding depends on a better mastery of its functions. In this context that we have carried out our study, the aim of which is to gather as much information

as possible on the monitoring of camel farming in the province of Bechar.

Material and Methods

Study area

The study was carried out in the province of Bechar, which is considered to be the largest province in the south-western Algerian Sahara, covering an area of 5,050 km². This province is located 1,150 km from the capital Algiers, 852 km from the province of Tindouf and around 80 km west of the Moroccan border (Fig. 1). L'étude a été réalisée au niveau de la wilaya de Bechar, qui est considérée comme la plus grande wilaya du Sud-Ouest du Sahara algérien avec une superficie 5 050 km². Cette wilaya est située à 1 150 km de la capitale Alger, 852 km de la wilaya de Tindouf et environ 80 km à l'ouest de la frontière marocaine (Fig. 1). It is divided into 21 communes and 12 daïras. The Béni-Abbés daïra is one of the new wilayas delegated under the new administrative division of the Wilaya of Bechar. The Wilaya of Bechar is characterized by a continental desert climate. There are two types of zone: The transition zone, bounded by Béni Ounif to the north and the Igli parallel to the south, is very hot in summer (+45°C) and cold

and harsh in winter (2°C to 3°C), with rainfall of around 60 mm/year. Sand

winds are frequent and often violent (100 km/h)(INVA, 2022).



Fig.1. - Location of study area

Data collection

A prospective study was carried out on camel breeding in the province of Bechar. Data were collected by the agricultural services department, private veterinarians and by means of a questionnaire sent to 10 camel breeders located in the study area. The questions mainly concerned: Camel numbers,

Typology and Ethnicity of camel breeding, Feeding, Quantities of water consumed according to the season, Reproduction parameters and the main pathologies in dromedaries.

Statistical analysis

All statistical analyses were carried out using XLSTAT (2014).

Results

Number of camels

According to statistics from the Agricultural Services Department, the

total camel population is estimated at 12,243 head (DSA, 2023), with a large number (3,865; 31.56%) in the Abadla commune and low numbers recorded (149; 1.21%) in the commune of Knadessa (Table1).

Table 1. - Distribution of camel livestock in the province of Bechar (DSA, 2022)

<i>Municipalities</i>	<i>Workforce</i>	<i>%</i>
<i>Bechar</i>	1178	9.62
<i>Ben Ounif</i>	1986	16.22
<i>Lahmar</i>	1800	14.7
<i>Knadssa</i>	149	1.21
<i>Taghit</i>	3265	26.66
<i>Abadla</i>	3865	31.56
<i>Total</i>	12243	100

Camel breeding typology and ethnic groups

According to our study, camel herding systems are divided into three types:

Semi-sedentary (62%), Sedentary (21%) and Nomadic (17%), with semi-sedentary is the most dominant (Fig. 2).



Fig. 2 - Camel breeding typologies in the province of Bechar

We found five camel populations:
l'Aftouh, Hamra in the Taghit daïra,
Local population (Hamra) in the

Abadela, Local population in Taghit
and l'Aitkhabbach (Fig. 3).



Fig. 3. - Camel population in the province of Bechar, A- l'Aftouh ; B- Hamra in Taghit; C- Local population (Hamra) in Abadela; D- Local population in Taghit; E- l'Ait khabbach

Feeding behavior





The dromedary is accustomed to the vegetation of dry zones, it must

systematically move in search of pasture and watering sources. (85%) of camel farmers declare that dromedaries use woody resources which can be

more abundant than herbaceous resources on the desert margins. The dromedary feeds while walking, grazing only a few plants and grasses each time. It can graze for 4 to 7 hours a day, with 6 hours of rumination. According to our field survey, all camel breeders know the names of

these plants, whether in Arabic or Amazigh, which differs according to the camel breeding region (Table 2). In the pastures of the Bechar, there are toxic herbs or plants that can cause dromedary death. These are known in the local vernacular TIRRIGHTE (OMHALLOUN) and ALIATTE.

Table 2. - Plants consumed by camels in the Bechar region

<i>Scientific name</i>	<i>Vernacular name</i>	<i>Picture of plant</i>
<i>Stipagrostis pungens</i>	Sbatte	
<i>Putoria tenella Pomel</i>	Djefna	
<i>Ephedra alata</i>	Alenda	
<i>Tribulus sp</i>	Omlbina	

Watering Frequency

The amount of water consumed varies according to the season, with a high consumption rate (60%) in summer (Fig. 3). In spring, the herds drink 3 to 5 times a month, in winter every 7 days to 2 months, while in summer the

animal must drink freely every 3 to 5 days.

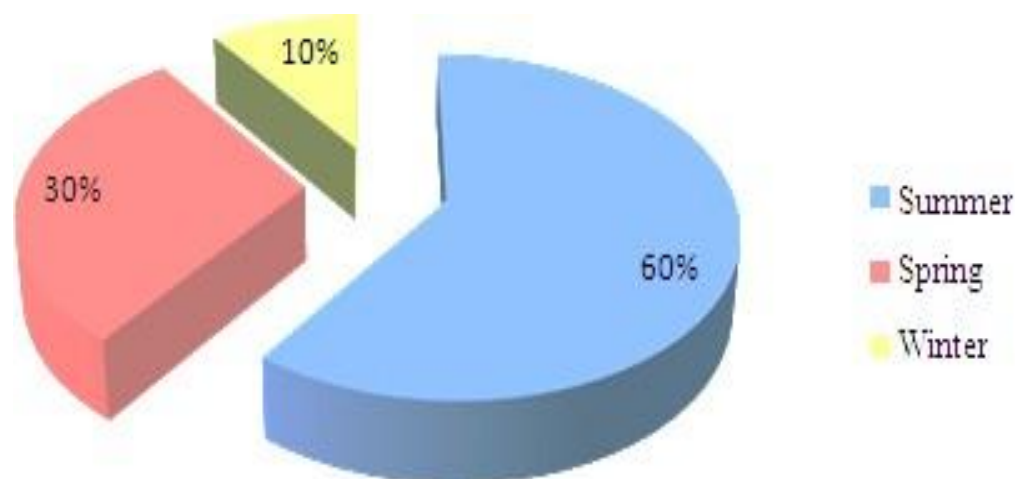


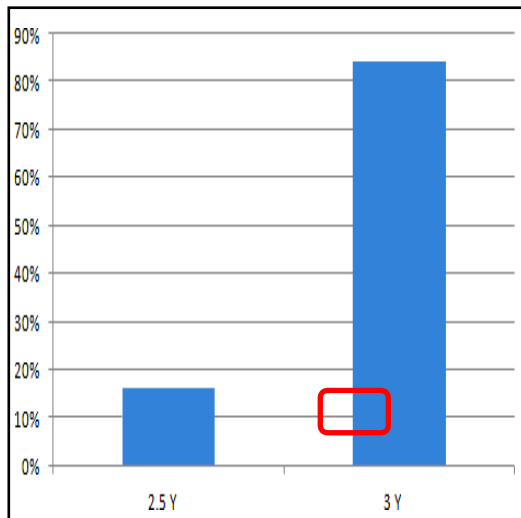
Fig. 4. - Watering frequency

Reproduction parameters

Both reproduction and animal health are of vital interest. The reproduction of camelids has its own particularities. However, we have listed below the results of a few reproduction parameters for this species.

Reproductive Age

According to (84%) of camel breeders, females are bred at 3 years of age, compared with 16% at 2.5 years (Fig. 5). However, (56%) of farmers surveyed breed males later, at around 5 to 6 years of age (Fig. 6).



*Y: Years

Fig. 5. - Females breeding

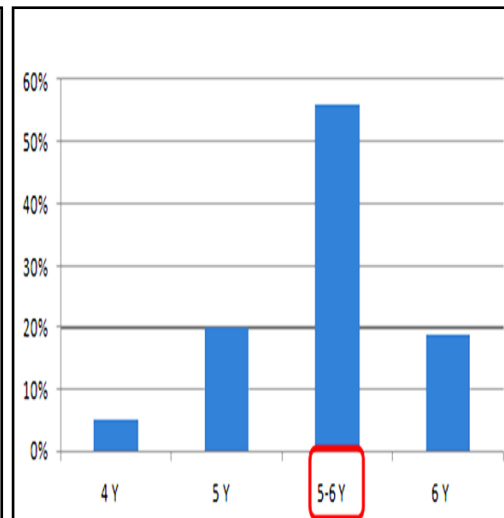


Fig. 6.- Male breeding

The calving Interval, Withdrawal and Tarissement

According to our results, (67%) of camel farmers stated that the duration of the calving interval was between 12-24 months. Regarding weaning of the chameleon (88%) of the surveyed

stated that weaning took place between 7 and 8 months of lactation, after which the mother pushes her calf away. While (75%) of camel drivers declare that camels dry up at 8 months, as opposed to (25%) advertising that camels females are dry at 7 months (Table3).

Table 3. - Sandblasting for three reproductive parameters

<i>Parameters</i>	<i>Monthly Period</i>	<i>%</i>
<i>Calving interval</i>	12	22
	24	11
	12-24	67
<i>Withdrawal</i>	<7	2
	7-8	88
	>8	10
<i>Dry-off</i>	7	25
	8	75

Discussion

The dromedary has an important role to play among certain tribes (the Touaregs, the Chaâmba, the Rgubate, etc.), not only economically but also socio-culturally. Our study recorded a camel population equal to 12 243 with a specific distribution of camels in the province of Bechar (DSA, 2022). Our results are comparable to those conducted by (Adamou, 2009) who state that specific environmental conditions can play an important role in the distribution of the camel herd. Different dromedary breeding systems in the province of Bechar, with a predominance of semi-sedentary livestock. Our results are similar to the work carried out by Messaoudi and Belakehal (2022) who observed a predominance of semi-sedentary breeders in a study carried out in the El-Oued region. According to Ben Aissa (1989), the new research refers to camel populations rather than races, and distinguishes five populations in the Bechar region: l'Aftouh, Hamra in Taghit, Local population (Hamra) in Abadela, Local population in Taghit and Ait khabbach.

According to Gauthier-Pilters (1977), dromedaries eat very thorny plants not only because they need them but also because they like them. Watering

frequencies vary according to the season and the availability of water-rich grass. The same observation was made by Moulaye (2019), who reported similar frequencies.(84%) of camel breeders say that females start breeding when they are 3 years old. Then (56%) say that males can go up to 5 or 6 years old. Our results are similar to those of El whishy (1987), (Zarouk et al., 2003), Zitout (2007) and Oulad Belkhir (2018). The weaning period varies from 7 to 8 months. Weaning depends on: Feeding on grazing land; Use of camel milk; Preparation of camels for slaughter.

Our study is comparable to the work of Guerradi (1998), where the camel driver generally intervenes to wean the camel when it reaches an age of between 6 and 12 months. He then forces the camel to feed on the grazing lands Cherfi (2003). Weaning depends on the camel's health, rearing conditions and the camel's destination (Adamou, 2008). According to 77% of camel breeders, dry-off occurs after 8 months of lactation. Our results are consistent with those reported by Knoes (1977). Finally, our study has provided an overview of the camel breeding situation in the wilaya of Bechar.

Conclusion

We conclude that our study has provided an overview of camel farming in the wilaya of Bechar. The dromedary plays an essential role in the economy of the Saharan zones, so further studies will be necessary to understand the advantages of camel farming and its different aspects in arid and semi-arid zones.

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