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EXISTING MANAGEMENTAL PRACTICES OF CAMEL FARMERS IN SEMI-ARID REGION OF RAJASTHAN

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ABSTRACT

The present study was done to understand the existing managemental practices of camel farmers in the semi-arid region of Rajasthan. A total of 70 respondents, 35 each were randomly selected from Jaipur and Ajmer districts, and interviewed. Desired information was collected in the questionnaire. The collected data were tabulated and subjected to various statistical methods to draw meaningful inferences. The result represented that the majority of camel reared in loose housing system (71.42% and 80%) and were devoid of any puckka floor (82.40% and 87.50%); roof (95.00% and 87.50%); wall (90.00% and 80%); feeding manger (71.42% and 66.66%); bedding material (96.15 and 80%); water troughs (59.25%, 85%); drainage system (77% and 80%) in Jaipur and Ajmer district, respectively. The most common feeding practice was browsing + stall feeding (65.73% and 62.85%); the mode of purchase for feed was direct from market (71.42% and 85.71%); provided additional feed (60% and 71.42%); and the source of feed was purchased (65.73%, 62.28%) in Jaipur and Ajmer districts, respectively. All camel farmers adopted natural service followed for breeding in Jaipur and Ajmer. In Ajmer, more respondents were aware of the oestrus sign (54.29%) as compared to Jaipur (40.00%); providing extra allowance for pregnant animals in Jaipur and Ajmer (65.72% and 60.00%), extra care for pregnant animals (65.72% and 54.29%), breeding season (Oct-March and Nov-March) in Jaipur and Ajmer districts, respectively. The present study revealed that most camel farmers used traditional management practices in both districts and it required training regarding scientific management practices of a camel for efficient utilisation of resources and achieving maximum production through camel rearing.

Key words: Breeding practices, camel farmers, existing managemental practices, housing practices, semi arid region

The typologies of camel farming systems may vary from the more traditional farms in the desert, with a nomadic lifestyle, to farms managed by owners living in the city with modern commercial purposes (Abdallah and Faye, 2013). The structural and management characteristics of facilities or practices, such as housing, feeding, breeding, and health management could affect several aspects of camel welfare as well as production. An economic feeding schedule adheres to maximum and optimal utilisation of the locally available feed resources (Kumari *et al,* 2023a). Thus, the description of the camel rearing conditions at markets and farms is of considerable importance not only to understand the welfare issues of both animals and farmers but also to evaluate current trends in this livestock sector (Abdallah and Faye, 2013; Menchetti *et al,* 2021). To enhance camel welfare as well as the income of camel owners for the increased interest of people towards rearing of camels, future studies are needed to introduce standard management methods and facilities for camel keeping and farming. It is, therefore, necessary for more studies on existing or traditional management practices of camel to introduce ideal management practices appropriate to the ecosystem and tradition for sustainable camel production.

Materials and Methods

The present study was conducted in two selected districts *viz*. Jaipur (26.9°N, 75.8°E) and Ajmer (26.4499°N, 75.6399°E) of Rajasthan. The selected respondents were interviewed and the desired information was collected in the developed questionnaire. Camel farmers who owned camels and being familiar with camel husbandry were selected from each district based on camel holding size as follows:

(i) Small holding - (1-2 camel) – Minimum 20 respondents.

(ii) Medium holding - (2-5 camel) - Minimum 10 respondents.

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(iii) Large holding (more than 5 camels) -Minimum 05 respondents.

A total of 70 camel farmers, 35 farmers from each district were selected to take part in the study. The data were collected with the help of a projected structured interview schedule by holding a personal interview with camel keepers by the researchers. The collected data was compiled, tabulated and analysed as per given objectives of the study with the help of appropriate statistical methods

Results and Discussion

The important prevailing camel husbandry practices *viz*. housing, feeding, breeding, health care and miscellaneous in the study area have been summarised in Tables 1, 2, 3, 4 and 5.

Housing practices: The present study observed that the majority of camel keepers kept their camels under loose housing systems (71.42% and 80%) and did not construct any type of floor (82.40% and 87.50%) in Jaipur and Ajmer. Normally camel houses did not have roofs (95.00% and 87.50%) and walls (90.00% and 80%) as the majority of camel keepers kept them in open areas or under trees. These findings are also in conformity with Rajput and Tripathi (2005), Bhakat and Pathak (2009) who found that camels were kept in shedless open areas with sandy floor for camels in Rajasthan. Similarly, Faraz *et al* (2019) reported that majority of camels are reared in open housing systems (60%) while few (40%) in semi-open housing systems.

Manger feeding and water trough: It was revealed that the majority of camel keepers did not use manger for feeding of camels in Jaipur and Ajmer (71.42% and 66.66%) whereas provision of water trough for drinking was present in camel houses in Jaipur (59.25%) but in Ajmer, majority of camel houses (85%) were without water troughs. Similar findings were observed by Dhawal *et al* (2020) who found that feeding in manger was less common practice and the majority of camel owners were using plastic or bamboo basket/old tyres (wheels) of the cart as feeding trough (movable). Bhakat and

Table 1. Housing practices in the study area Jaipur and Ajmer.

Variables		Jaipur	Ajmer
		Per cent (%)	Per cent (%)
Type of house	Loose housing	71.42	80.00
	Extensive/Migration	28.57	20.0
Floor	Pucca	17.59	12.50
	Kutcha	82.40	87.50
Type of Roof Material	Conventional	05.00	12.50
	No Roof	95.00	87.50
Material used in walls	Brick with mud	03.00	00.00
	Kutcha	07.00	20.00
	No Walls	90.00	80.00
Manger Feeding	Yes	28.57	33.33
	No	71.42	66.66
Bedding material	Yes	09.09	20.00
	No	96.15	80.00
Presence of Watering troughs	Yes	59.25	15.00
	No	40.74	85.00
Drainage System	Efficient	8.00	12.00
	Non – efficient	15.00	08.00
	No Drainage System	77.00	80.00

Table 2. Feeding practices in the study area Jaipur and Ajmer.

Variables		Jaipur	Ajmer
		Per cent (%)	Per cent (%)
Feeding practices	Stall feeding	22.85	05.73
	Browsing feeding	11.42	31.42
	Browsing +stall feeding	65.73	62.85
Mode of Feed Purchase	Direct	71.42	85.71
	Indirect	28.58	14.29
Additional feed added	Yes	60.00	71.42
	No	40.00	28.58
Source of feed	Locally available forages/ weeds	34.27	62.28
	Purchased Feed	65.73	37.72
Preserved feed used	Yes	80.00	74.28
	No	20.00	25.72
Frequency of feeding	Once	22.75	11.42
	Twice	60.00	65.73
	Other	17.15	22.85
Concentrate feeding	Yes	91.42	77.14
	No	8.58	22.86
Concentrate type	Purchased concentrate	24.27	61.70
	Homemade concentrate	75.73	38.30
Extra Concentrate feeding for lactating camels	Yes	68.58	71.43
	No	31.42	28.57
Extra Concentrate feeding for breeding male	Yes	65.71	14.29
	No	34.29	85.71
Mineral mixture used	Yes	91.42	68.57
	No	8.58	31.43

Pathak (2009) found the majority of households were using movable feeding troughs but fewer households constructed mangers in camel houses.

Feeding Practices: The present study revealed that most of the camel keepers adopted browsing + stall feeding (65.73% and 62.85%) in Jaipur and Ajmer. These results aligned with Dhawal *et al* (2020) who found that the majority of respondents in Bikaner (90%) and Jaisalmer (75%) were following both stall feeding and grazing on pasture land (semi-intensive). Bhakat and Pathak (2009) reported that the feeding practices were different and depended on the category of the farm. Small-category farmers adopted mostly browsing practices while medium farmers adopted both types of feeding practices (browsing + stall feeding) and large farmers adopted mostly stall feeding for camels as per their convenience. Faraz *et al* (2019) reported that the majority of camels were reared in stall and browsing feeding practices.

Mode of purchase and source of feed: It was observed that the most common mode of purchasing feed was direct from the market in Jaipur and Ajmer (71.42% and 85.71%). It was indicated that camel keepers were procuring feed through purchasing in Jaipur (65.73%) but in the case of Ajmer, locally available forages/weeds (62.28%) were used for feeding camel. The practice of using preserved feed for camel was common in Jaipur and Ajmer (80% and 74.28%, respectively). According to Dhawal *et al* (2020), there was insufficient grazing pasture and owned farm products to meet the daily requirement of feed for camels due to which about 93 per cent of respondents were compelled to purchase fodder from the market.

Provision of concentrate feed: The data showed that most camel keepers provide concentrate feed to camels in Jaipur and Ajmer (91.42% and 77.14%). However, homemade concentrate feed was common in Jaipur (75.73%) but in the case of Ajmer purchased concentrate was common (61.70%). Bhakat and Pathak (2009) also reported that about 18% of farmers were providing concentrate as per scientific recommendations.

Extra concentrate feed for lactating camel and breeding males: It was also observed that camel keepers provided extra concentrate feed for lactating camel in Jaipur and Ajmer (68.58% and 71.43%). Extra concentrate feed was provided for breeding males in Jaipur (65.71%) but in the case of Ajmer,

Table 3. Breeding practices in the study area Jaipur and Ajmer.

Variables		Jaipur	Ajmer
		Per cent (%)	Per cent (%)
Breed of camel	Non- descript	92.50	63.00
	Descript	7.50	37.00
Mode of Breeding	Natural service	100.00	100.00
	Artificial insemination	0	0
Mode of Breeding	Yes	40.00	54.29
	No	60.00	45.71
Aware with oestrus sign (Heat detection)	Yes	20.00	28.57
	No	80.00	71.43
Castration practices adopted	Yes	65.72	60.00
	No	34.28	40.00
Extra allowance for pregnant animals	Yes	65.72	54.29
	No	34.28	45.71
Care of pregnant animals	Small	Dec-March	Nov-Feb
	Middle	Dec-Feb	Dec-Jan
Breeding season	Large	Oct-March	Nov-March
	Small	37	35
Age at 1st mating/ heat (months)	Middle	36.60	35
	Large	31.89	29.72

Table 4. Health care practices in the study area Jaipur and Ajmer.

Variables		Jaipur	Ajmer
		Per cent (%)	Per cent (%)
Deworming schedule followed	Regular	25.71	0.00
	Irregular	48.57	82.85
	Never	25.71	17.14
Regular vaccination adopted	Yes	34.28	82.85
	No	65.71	17.14
Veterinary aid available	Satisfactory	42.85	82.85
	Poor	57.14	17.14
Calf mortality	upto 1 month	48.57	22.85
	1-3 month	42.85	65.71
	Above 3 month	8.50	8.50
Prevalence of common diseases	Diarrhoea	35.00	25.80
	Skin disease	28.33	25.80
	Blot	25.00	40.32
	Unknown	11.66	8.08
Isolation of sick animals	Yes	60.00	40.00
	No	40.00	60.00
Indigenous method of treatment followed	Yes	15.62	53.15
	No	84.38	46.85

Table 5. Distribution of respondents according to their milking practices in the study area.

Personal Attributes		Jaipur	Ajmer
		Average Mean	Average Mean
Selling of camel milk (Rs./L)	Regular Basis	38	23
Time and milking technique	Regular Basis	5-7 am 5-7 pm Shiftpan	5-7 am 5-7 pm Bucket hanging
Milking method	Full hand	16.33	32.01
	Knuckling	78.34	65.33
	Stripping	5.34	2.66
	Machine Milking	0.00	0.00
Lactation Period/ Length (Months)	Regular Basis	16-18	14-16

it was uncommon (85.71%). Bhakat and Pathak (2009) observed that the concentrates were also fed to breeding camels only during the breeding season once a month in Bikaner. Rajput and Tripathi (2005) reported that farmers provide concentrate feed for lactating camels at weekly intervals immediately after parturition 41.66% and 25% of the families at Jaipur and Ajmer, respectively. Concentrates were also fed to breeding camels only during the breeding season once a month by half of the respondents.

Provision of mineral mixture: The results showed that awareness about the feeding of the mineral mixture was observed in the majority of camel keepers in Jaipur and Ajmer districts (91.42% and 68.57%). Dejene (2015) found that mineral supplementation was provided for almost all categories of camels.

Common green and dry forage: The most common green forages are bajara (*Pennisteum glaucum*), jowar (*Sorghum bicolor*), maize (*Zea mays*), lucerne (*Medicago sativa*) and berseem (*Trifoluim alexandrium*), dry forages are wheat straw (*Triticum aestivum*), barley straw (*Pennisteum glaucum*), green straw, oat straw (*Avena sativa*) and zao (*Ziziphus jujuba*), top forages are ardu (*Ailanthus excelsa*), neem (*Azadirachta indica*), ber (*Zizyphus jujaba*) and khejri (*Prosopis cineraria*), trees are khejri, neem, babul (*Acacia arabica*), rohida (*Tecomella undulata*) and subabul (*Leucaena leucocephala*) in Jaipur and Ajmer. Dhawal *et al* (2020) observed that camels were fed on bushes and trees like khejari, jharberi (*Ziziphus nummularia*), neem, jaal (*persica oleoides*), tali (*Erythrophleum suaveolens*), kair (*Capparis decidua*) and fog (*Holcus lanatus*). Camel owners were giving guar or cluster bean fodder local name phalgati, moth chara (*Heliocheilus lupatus*), wheat straw, bajra stem and groundnut chara as roughage. In concentrate feeding, they were giving cotton seed cake, til cake (*Sesamum indicum*), groundnut cake (*Arachis hypogaea*), sunflower cake (*Helianthus annuus*), guar (*Cyamopsis tetragonoloba*), moth churi, gram churi (*Cicer arietinum*), barley (*Hordeum vulgare*) and bajra in Bikaner and Jaisalmer. Rajput and Tripathi (2005) reported that about 50% of the respondents fed bajra as concentrate followed by moth and guar by 36.67 and 13.33%, respectively, during winter. Above 55% of respondents were providing moth during both summer and rainy seasons. Moth chara was one of the major roughages provided to camels in all the 3 seasons by the majority of the Raikas follbwed by mufali chara and guar phalgati, the other common roughages. Loon (leaves) of desert tree khejri (*Prosopis cineraria*) were fed to animals by the majority of the families in both winter and rainy seasons. However, phog (*Calligornum polygononides L.*) is an important bush, which was also given by about 58% of the respondents during summer. About 33.0, 17.0 and 8.0% of Raikas were also feeding ker (*Capparis deciduas*) to camel during winter, summer and rainy season, respectively.

Breeding Practices: All camel keepers adopted natural service (100%) in Jaipur and Ajmer districts. Rajput and Tripathi (2005) reported that the artificial insemination practice in camel was absent in the Bikaner district. The results conformed with Saini *et al* (2007), Mehta *et al* (2007), Singh *et al* (2009) and Faraz *et al* (2019).

Awareness of oestrous sign: The result indicated that the majority of camel keepers were not aware of the oestrus signs in camels at Jaipur (40.00%) but in the case of Ajmer respondents were aware of the oestrus signs (54.29%). Rajput and Tripathi (2005) reported that the raikas followed different common traditional practices for the identification of heat in she-camels. The majority of the respondents (68.34%) were identifying heat in female camels by observing slimy discharge from the vulva. About 30% of Raika reported that refusal to eat and frequent micturition habits in females were the other symptoms of heat identification.

Castration practice: Castration practice was not common among farmers in Jaipur and Ajmer (80.00% and 71.43%) districts. These results were aligned with Woldearegay *et al* (2015) who found that 70.0% of the respondents did not prefer to castrate their camels.

Extra care and concentrate allowance: It was observed that camel keepers provide extra care and

concentrate allowance for pregnant she-camel (65.72% and 54.29%) and (65.72% and 60.00%) in Jaipur and Ajmer districts, respectively. Similar findings were observed by Rajput and Tripathi (2005) and Bhakat and Pathak (2009), who reported that most of the farmers provide extra ration during the advance stage of pregnancy and give extra care during parturition.

Breeding season: Results obtained indicated that the heat in camels was evidenced during winter (rutting period) in Jaipur and Ajmer (Oct-March and Nov-March). The breeding (rutting) period in the camel ranged from November to March (Rajput and Tripathi, 2005; Faraz *et al,* 2019).

Age at first mating: It was observed that the age of first mating in female camel was 30-37 months in Jaipur and Ajmer districts. Dejene (2015) reported that the age at first mating in female camel was 48 – 72 months.

Health care practices

Deworming and Vaccination: Data represents that the majority of camel farmers in the Jaipur district were more aware of deworming schedule than Ajmer. Nearly 25.71 per cent of farmers regularly and 48.57 per cent irregularly followed the deworming schedule whereas in Ajmer district majority of the farmers (82.85 per cent) irregularly followed the deworming schedule. For vaccination practices, 65.71 per cent did not follow regular vaccination in Jaipur. Contrarily, in the Ajmer district, 82.85% of camel farmers followed a regular vaccination schedule. Padalino *et al* (2021) reported that most of them carried out deworming and ectoparasites treatments by themselves ($p < 0.001$) while over 70% did not vaccinate their camels ($p < 0.001$). Abdallah and Faye (2013) reported that the majority of the camel owners did not vaccinate camels against pox (jedari) in the study area of Saudi Arabia. Dejene (2015) found that vaccination was not rendered for the camel in the study area.

Veterinary aid: The results indicated that veterinary services were poor in Jaipur (57.14%) but in the case of Ajmer, camel farmers were satisfied with veterinary services (82.85%). Dhawal *et al* (2020) reported that in 25 per cent of respondents in the Bikaner district and 50 per cent of respondents in the Jaisalmer district, the veterinary facilities were available in their village. However, the majority (62.50%) of respondents from both districts reported the lack of a veterinary facility in their village. Dejene (2015) found that the majority (81.32%) of camel keepers did not have access for veterinary services. Osman *et al* (2015) reported that most camel owners (70%) responded that there is no veterinary service and the majority of them (80%) mentioned that the veterinary service was provided by the private sector while 20% mentioned that the veterinary service was provided by the government.

Calf mortality: The data showed that the majority of calf mortality was observed, up to 1st month in Jaipur (48.57%) but in the case of Ajmer, common in 1-3 months (65.71%). Faraz *et al* (2019) reported 24% calf mortality in camels. Awoke and Ali (2015) found that the overall percentage of pre-weaning mortality for camels was 61.5%.

Prevalence of common diseases: It was also revealed that the most common prevalent diseases in camels were diarrhoea in Jaipur (35.00%) and blot (40.32%) in Ajmer area. Awoke and Ali (2015) reported that all the agro-pastoral and pastoralists paid particular attention to diarrhoea, describing it as a serious killer of very young camel calves.

Indigenous method of treatment: The data indicated that the majority of farmers did not use the indigenous method of treatment in Jaipur (84.38%) but in the case of Ajmer, the majority of camel farmers (53.15%) used indigenous methods. These findings were in accordance with Dhawal *et al* (2020) who reported the majority of respondents in Bikaner (55%) and Jaisalmer (50%) districts treated medicinal problems by self among their camels followed by a veterinarian in Bikaner (31.67%) and Jaisalmer (43.33%). Lamuka *et al* (2017) reported that most of the camel farmers self-medicated their camels and chose drugs based on their own experience or the advice of the shop attendant in the study area of Kenya. Abdallah and Faye (2013) reported that about 19% of camel farmers used traditional medicine to treat sick camels, particularly parasite diseases such as mange or ringworm in Saudi Arabia. Awoke and Ali (2015) reported that agro-pastoral and pastoralists from all the districts attempted to control diarrhoea using different traditional methods to treat diarrhoea by giving the calf black tea and depriving it of milk, depriving the calf of colostrums for very young ones, oral administration of sheep and goat fat, salted water.

Milking practices: The present study also revealed that the average price of camel milk on a regular basis in Jaipur and Ajmer was Rs 38 and 23, respectively. The average time for complete milking in Jaipur and Ajmer was 5-7 am and 5-7 pm, but the milking technique varied. They used the Shift pan method and Bucket hanging method, respectively.

The most common method of milking was Knuckling in Jaipur and Ajmer (78.34% and 65.33%). The average lactation period/length (month) in Jaipur and Ajmer was 16-18 months and 14-16 months. Bhakat and Pathak (2011) reported that most of the farmers (78%) were milking their camel through knuckling method because it helps in squeezing out maximum milk from the udder as per farmers' perception. Others (22%) practiced the hand-stripping method. Milking was done in a standing position by farmers. Usually, the milker stands on the left side of a camel on one leg, while the thigh of the other leg was used to place the milking container over it. Tandon *et al* (1998) reported that the lactation length in camel varied from 8 to 9 months and it could last for 16 months. Shishay and Mulugeta (2018) observed that the lactation length in camel varied from 9 to 16 months. Lactation length is shortened when producers have plenty of feed for the calf. Lactation length is extended to prevent pregnancy and then to carry on to continue milk production for household consumption as well as to safeguard the camel calf (Yohannes *et al,* 2007), and if the extent of demand for milk by the owner advanced than ever and there is better feed availability for the animal (Simenew *et al,* 2013). Mahamed *et al* (2015) reported that the milking frequency of camel was 2-3 times per day. Similarly, Osman *et al* (2015) observed that the majority of camel owners (61.7%) milked two times per day and the lactation period of camel varied from 8 months to 14 months.

Conclusion

The present study revealed that most camel farmers use traditional management practices in both districts and its required training regarding scientific management practices of camel for efficient utilisation of resources and achieving maximum production through camel rearing.

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Conflicts of Interest

The authors declare no conflict of interest.

References

Abdallah HR and Faye B. Typology of camel farming system in Saudi Arabia. Emirates Journal of Food and Agriculture. 2013;2(5):250-260.

Awoke K and Ali SM. Traditional Husbandry Practices and Major Challenge of Young Stock (Camel Calf) in Fafen Zone, Ethiopian Somali Regional State. Journal of Environmental and Analytical toxicology. 2015;(5): 321.

Bhakat C and Pathak KML. Socio-economic aspects of dromedary camel management in hot arid desert ecosystem. Indian Journal of Animal Sciences, 2009; 79(7):700-05.

Bhakat C and Pathak KML. Important factors affecting sustainable livelihood of camel dairying in changing scenario of desert ecosystem. Indian Journal of Animal Sciences. 2011; 81(1):48–51.

Dejene TG. Husbandry Practices and Utilisation of Camel Products in Borana Zone of Southern Oromia, Ethiopia. Science Research. 2015; 3(4):191-197.

Dhawal KK, Rajput DS, Sharma NK, Mishra P and Kumari, M. Study on management prcatices of camel in arid zone of Rajasthan. International Journal of Livestock Research. 2020; 10(10):218-224.

Faraz A, Waheed A, Yaqoob M and Mirza RH. Camel Production Profile in Desert Ecosystem of Thal, Punjab. Sindh University Research Journal -Science Series. 2019; 51(01):45-52.

Kumari S, Sharma S, Sahoo A, Sawal RK, Singh N and Ahari A. Effect of tanniferous tree leaves in Camel's diet on milk yield and quality. Journal of Camel Practice and Research. 2023a; 30(1):73-79.

Lamuka PO, Njeruh FM, Gitao GC and Abey KA. Camel health management and pastoralists' knowledge and information on zoonoses and food safety risks in Isiolo County, Kenya. Pastoralism Research Policy and Practice. 2017; 7:20.

Mahamed A, Haji A, Beriso K and Gebeyew K. Small camel holder camel milk production performance in Jijiga district, Somali regional state Eastern Ethiopia. Journal of Veterinary Science and Technology 2015; 6:267.

Mehta SC, Bhardwaj B and Sahani MS. Status and conservation of Mewari and Jaisalmeri camels in India. Animal Genetic Resources Information, 2007; 40:87-101.

Menchetti L, Zappaterra M, Costa LN and Padalino B. Application of a protocol to assess camel welfare: Scoring system of collected measures, aggregated assessment indices, and criteria to classify a pen. Animals. 2021; 11:494.

Osman AM, Abdelkreim M, Abukashawa SMA and Ibrahim MT. Studies on camel's feeding and utilisation of camel's milk in buttana area, Gaderif State, Sudan. Journal of Advances in Dairy Research. 2015; 3:141.

Padalino B, Abdelali Z, Monaco D, Freccero F and Menchetti L. Dromedary camel health care practices reported by caretakers working at a permanent market. Emirates Journal of Food and Agriculture. 2021; 33(4):348-361.

Rajput DS and Tripathi H. Camel husbandry practices followed by Raikapastoralists under semi-intensive system in Bikaner district of Rajasthan. Indian Journal of Animal Sciences. 2005; 75(11):1307-13.

Saini N, Singh N and Kiradoo BD. Field management survey study of camel in western Arid zone of Rajasthan. Journal of Veterinary Practitioner. 2007; 8(1):88-91.

Shishay G and Mulugeta F. Camel milk production, prevalence associated risk factor of camel mastitis in Aysaitaworerda Afar regional state, North East Ethiopia. ARC Journal of Animal and Veterinary Science. 2018; 4(3):17-37.

Simenew K, Dejen T, Tesfaye S, Fekadu R, Tesfu K and Fufa D. Characterization of Camel Production System in Afar Pastoralists, North East Ethiopia. Asian Journal of Agricultural Sciences. 2013; 5(2):16-24.

Singh BP, Sharma MC, and Tiwari R. (2009). Feeding resources and management among poor livestock keeper: A field study in linkage villages. The Indian Journal of Animal Sciences. 2009; 79(12):1263-1264.

Tandon SN, Bhakat C, Sahani MS and Chirania BL. To develop suitable management practices for rearing camel. Annual Report. 1998; 15-21. NRCC, Bikaner, Rajasthan.

Woldearegay YH, Berhanu M and Mebratu AT. Study on management practices and production constraints of camel in Raya-Azebo district, Tigray, Northern Ethiopia. European Journal of Biological Sciences. 2015; 7(1):01-06.

Yohannes M, Zeleke M and Getachew G. Potentials of Camel Production in Babilie and KebribeyahWoredas of the Jijiga Zone, Somali Region, Ethiopia. Livestock Research for Rural Development 2007; 19(4).

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