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Study of Gestation Period, Calving Interval and Birth Weight of Achai Cattle at Livestock Research and Development Station Dir Lower, Pakistan

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Abstract
A study was conducted at Livestock Research and Development Station, Animal Analytical Laboratory Dir Lower Khyber Pakhtunkhwa (KPK) Pakistan to document thereproductive characteristics of Achai cattle. Three different characteristics i.e. gestation period, calving interval and birth weight were studied. 25 animals were observed for gestation period, 24 for calving interval and 40 new born were recorded for birth weight. Mean gestation period was observed 274.84±17.31 days. Mean calving interval was recorded 446.38± 37.14 days. Mean birth weight was recorded 16.25±2.44 kg.

1 Introduction

Local livestock breeds are usually a better option for livestock farmers (Khan et al. 2005). Especially in the areas like Khyber Pakhtunkhwa, this is dominated by hilly areas and mountainous pasture (Khan et al. 2005). One such local breed is Achai cattle. This breed is believed to be more adoptable to the environmental conditions of the mountainous terrain of the northern region of Khyber Pakhtunkhwa (Saleem et al. 2010). This breed thrives on local pasture resources, more disease resistant and reasonably productive on the available feed resources (Saleem et al. 2013). This breed has recently got some attention from the authorities, but need more attention from researchers to establish its genotypic and phenotypic characteristics. Achai cattle can be categorized as small to medium size cattle breed. The northern region of Khyber Pakhtunkhwa, which include the districts of Upper Dir, Lower Dir, Swat, Bajour and the surrounding area are considered to be the home tract of Achai cattle (Rahim et al. 2013). Farmers raise Achai cattle in the area because feed resources in the area are not abundant and Achai cattle has the advantage to graze in the mountainous pasture and move swiftly around due to its small body size (Khan et al. 2008). Furthermore Achai cattle can tolerate feed shortage due to its low maintenance requirement compared to other heavy breed of cattle (Khan et al. 2008). The low feed requirement of Achai cattle gives it advantage over exotic and heavy dairy cattle breed because it can feed itself in raged mountainous terrain and it is more resistant to environmental condition (Kohler-Rollefson et al. 2009). Although Achai cattle is not documented yet (Saleem et al. 2013) the current shift in livestock practices in the world due to environmental changes, dictates that local breeds should be well investigated, because such breeds has the potential to cope with environmental changes in the future. In this connection determination of various characteristics of Achai cattle is even important for its conservation and future development. This study aims to collect data on the gestation period, calving interval and birth weight of claves in Achai cattle.

2 Material and Methodology

The study was conducted at Establishment of Livestock Research and Development Station, Animal Analytical Laboratory, Dir Lower, Khyber Pakhtunkhwa. This research facility is located in the sub-tropical area with an annual rain fall of 1000-1200 mm. The following characteristics were observed in the study.

Gestation Period

Data on gestation period was obtained from the reproductive record of the Establishment of Livestock Research and Development Station, Animal Analytical Laboratory, Dir Lower, Khyber Pakhtunkhwa. Gestation Period was calculated by counting the number of days between the successful last insemination and parturition dates.

Calving Interval

Data on calving interval was obtained from the reproductive record of the Establishment of Livestock Research and Development Station, Animal Analytical Laboratory, Dir Lower, Khyber Pakhtunkhwa. Calving Interval was calculated by counting the number of days between two successful calving.

Birth Weight

Birth weight was determined by weighing the new born calves immediately after birth by Dovl's electronic balance.

3 Results and Discussion

Table No.1 shows the observations made during the study. 25 animals were observed for gestation period, 24 for calving interval and 40 new born were recorded for birth weight. Mean gestation period was observed 274.84 $\pm$ 17.31 days, which is in accordance with the standard gestation period of cattle (Khan et al. 2005). Mean calving interval was recorded 446.38 $\pm$ 37.14 days which is in accordance with the recommended range of calving interval for cattle in the tropical areas of the world (Kanuya 1992). Mean birth weight was recorded 16.25 $\pm$ 2.44 kg. The maximum and minimum limit of the gestation period, calving interval and birth weight are presented in Table No.2. The productive and reproductive performance of the cattle can be improved by genetic selection and improvement in management (Nogueira et al. 2003)

Table No.1

S. NO	Gestation Period (days)	S. NO	Gestation Period (days)	S. NO	Birth Weight (kg)	S.NO	Birth Weight (days)	S. No	Birth Weight (kg)	S. No	Calving Interval (days)	S. No	Calving Interval (days)
1	272	16	279	1	15	16	14	31	13.5	1	459	16	491
2	268	17	271	2	14	17	17	32	16	2	407	17	392
3	276	18	274	3	18	18	18	33	14.5	3	480	18	397
4	276	19	273	4	15	19	16.5	34	13	4	456	19	468
5	260	20	212	5	13	20	16	35	15	5	494	20	410
6	270	21	278	6	16	21	16	36	10	6	437	21	420
7	278	22	270	7	19	22	16	37	18	7	480	22	385
8	273	23	272	8	18	23	20	38	17	8	463	23	451
9	270	24	310	9	16	24	18	39	13	9	413	24	458
10	296	25	290	10	22	25	18	40	17	10	514	25	
11	273			11	16	26	21			11	452		
12	305			12	18	27	19.5			12	444		
13	275			13	17	28	18			13	391		
14	276			14	16	29	15			14	456		
15	274			15	15	30	12			15	495		

Observation of Gestation Period, Birth weight of newborn calves and calving interval in Achai cattle.

Table No. 2

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Calving Interval	24	129.00	385.00	514.00	446.38	37.14813	1.380E3
Birth Weight	40	12.00	10.00	22.00	16.2500	2.44163	5.962
Gestation Period	25	98.00	212.00	310.00	274.84	17.31252	299.723
Valid N (list wise)	24						

Description of birth weight, Gestation Period, and calving interval in Achai Cattle

4 Conclusions

Achai cattle is the smallest breed of cattle in Pakistan. Being a multipurpose breed, it is used for both milk production and draft purpose. This breed is well adapted to the local conditions; it can feed itself by grazing in the tough mountainous terrain. Achai cattle is a valuable income resources for livestock farmers because cross breed and exotic cattle breeds cannot optimally on the limited and hard to get feed resources in the area. The emerging threat to Achai cattle is, it's cross breeding with non-descript and exotic Jersey breeds. Traditionally, Achai bulls were kept in its home track for draft purpose and in agriculture. However due to increasing dependency of farmers on agriculture machinery Achai bulls are rapidly decreasing in numbers. To mitigate the situation Livestock and Dairy Development Department Khyber Pakhtunkhwa has started a conservation program in partnership with private sector to conserve the breed. Determination of the characteristics of Achai cattle will help improve and conserve the breed.

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