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RESEARCH ARTICLE

A STUDY ON REPRODUCTION AND FERTILITY OF ACHAI CATTLE AT DIR, (L) PAKISTAN

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Abstract

A revised study was conducted at Livestock Research and Development Station Dir,Lower Khyber Pakhtunkhwa (KPK) Pakistan to document the fertility and reproductive 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 intervals and 40 new born were weighed for birth weight respectively. Mean gestation period, calving interval and birth weight wererecordedto be 274.84±17.31, 446.38±37.14 days and 16.25±2.44 kgs respectively.

Introduction:-

Local livestock breeds are usually a better option for livestock farmers especially in areas like Khyber Pakhtunkhwa, which is dominated by hilly areas and mountainous pastures (Khan et al., 2005). One local breed is Achai cattle. This breed is believed to be more adaptable to the environmental conditions of the mountainous terrain of the northern region of Khyber Pakhtunkhwa (Saleemet al., 2010). Achai cattle breed thrives on local pasture resources, more disease resistant and reasonably productive on the available scant feed resources (Saleem et al., 2013). 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 surrounding areas are considered the home tract of Achai cattle (Rahim et al., 2013). Due to its small body size and lack of abundant feed resources farmers raise Achai cattle due to its swift grazing ability in mountenous terrain. Furthermore, Achai cattle can tolerate feed shortage due to its low maintenance requirement compared to heavy cattle breeds (Khan et al., 2008). The low feed requirement of Achai cattle give it advantages over exotic and heavy dairy cattle breed because it can feed themselves in ragged mountainous terrain and resistant to harsh environmental conditions (Kohler-Rollefson et al., 2009). The current shift in livestock practices in the world due to environmental changes, dictates that local breeds should be well investigated, because such breeds have the potential to cope with environmental changes in the future. In this connection determination of various characteristics of Achai cattle is even more important for its conservation and future development. The present study was aimed to collect data ongestation period, calving interval and birth weight of Achai cattle.

Materials and Methods:-

The study was conducted at 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.

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Gestation Period:
Data on gestation period was obtained from the reproductive record of the Livestock Research and Development Station, Animal Laboratory, Dir Lower Khyber Pakhtunkhwa. Gestation period was calculated by enumerating the number of days between the successful last insemination, natural mounting in some cases and parturition date subsequently.

Calving Interval:
Data on calving interval was obtained from the reproductive record of the 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 calvings.

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

Statistical Analysis:
The data obtained was analyzed using ANOVA statistical program& Standard Deviation Calculator.

Results and Discussion:-

25 animals were observed for gestation period, 24 for calving interval and 40 new born calves were weighed for birth weight. Mean gestation period was recorded 274.84 ± 17.31 days (Table. 01), which is in accordance with the standard gestation period of cattle documented by (Khan et al., 2005). Mean calving interval was recorded 446.38 ± 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 ± 2.44 kg which is slightly more than the docmented average birth weight found out by (Hayaz et al., 2014)in achai cattle calves as 15.23±0.49. These differences in brith weight in achai cattle might be due to the differences in temperature and topography of the study places and more rain in Dir as compared to Peshawar. 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, 2004).

Table No.1:- Gestation Period, Calving Interval and Birth Weight of Achai Cattle.

S.NO	Gestation period	S.NO	Gestation Period	S.NO	Birth Weight (kgs)	S.NO	Birth Weight (kgs)	S.NO	Birth Weight	S.NO	Calving Interval	S.NO	Calving Interval
01	272	16	279	01	15	16	14	31	13.5	01	459	16	491
02	268	17	271	02	14	17	17	32	16	02	407	17	392
03	276	18	274	03	18	18	18	33	14.5	03	480	18	397
04	276	19	273	04	15	19	16.5	34	13	04	456	19	468
05	260	20	212	05	13	20	16	35	15	05	494	20	410
06	270	21	278	06	16	21	16	36	10	06	437	21	420
07	278	22	270	07	19	22	16	37	18	07	480	22	385
08	273	23	272	08	18	23	20	38	17	08	463	23	451
09	270	24	310	09	16	24	18	39	13	09	413	24	458
10	296	25	290	10	22	25	18	40	17	10	514		
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		

Observations of Gestation Period, Birth weight of new born calves and Calving Interval in Achai Cattle

Table No.2:- Maximum and Minimum Limit of the Gestation Period, Calving Interval and Birth Weight of Achai Cattle.

	Count, N	Range	Minimum	Maximum	Mean, $\bar{x}$	Std. Deviation, s	Variance, s^2

Calving Interval	**24**	**129.00**	**385.00**	**514.00**	**446.38**	**37.14813**	**1379.984**
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**

Description of Birth Weight, Gestation Period, and Calving Interval in Achai Cattle

Conclusion and Final Considerations:-

Achai cattle are the smallest breeds of cattle in Pakistan. Being a multipurpose breed, it is used for both milk and draft purposes. Achai cattle are valuable income resources for livestock farmers because cross and exotic cattle breeds cannot optimally be reared on the limited feed resoureces in the nothern rainy terrian. The emerging threat to Achai bulls in its home track is their less usage for draft purposes in agriculture due to increasing dependency of farmers on agriculture machinery, consequently, Achai bulls are rapidly decreasing in number.

Overall, however, I the author of this paper suggest that the adoption of genetic technologies in cattle industries are reconfiguring power relationships in deep and enduring ways, depending as much upon farmer and breeder engagement as on the strategies of the companies/ stakeholders involved.

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