

Month-wise Survivability in Sirohi Goat Kids under Farm and Field Condition

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ABSTRACT: A study was conducted on survivability of Sirohi kids in different age group (0-3, 3-6, 6-12 month) under farm and field condition. Data were accessed from 2015 to 2021, with the information on 504 mortality records maintained at College of Veterinary and Animal science, Navania, Udaipur as AICRP field unit and Bojunda (Chittorgarh) as farm unit. At pre-weaning stage (0-3 months) highest survivability was found in September month (97.85±1.616%) and lowest survivability was observed in April month (88.00±1.745%). Whereas in post-weaning age (3-6 months, 6-12 months) highest survivability was estimated in April month as 97.77±4.299% and 99.00±12.580%, respectively and lowest survivability was observed in December and July as 55.14±5.389 and 87.75±3.631%, respectively.

Keywords: Survivability, Kids, Month-wise.

INTRODUCTION

Goat (*Capra hircus*) is the one of the most important livestock species in India that is considered as a versatile animal, adapted to varied agroclimatic conditions of the world with more than 95 percent of the goat population found in developing countries (FAO, 2006). India is second in the world in terms of goat population, with 148.88 million accounting around 27.80% of the nation's total livestock (20th- Livestock census, 2019). For rural families engaged in this line of work, goats provide more than 52% of their household's overall revenue, which goes toward ensuring food security and nutrition (Kumar, 2007). Goat milk has a high nutritional content and it may be used to replace cow milk for those suffering from allergy (Yedatkar *et al.*, 2022).

Sirohi goat is a dual-purpose (meat and milk) animal, adapted to semi-arid and arid climate of country. In terms of growth, productivity, adaptability and resistance to disease, this breed of goats has proven to be excellent. The animal of this breed looks beautiful and alert having strong body with good posture.

Survivability of kids is the matter of concern for farmers and breeders because it is closely associated with economic loss. Survivability of goats refers to the capacity of goats, whether in domestic or wild settings, to endure and thrive in their environment, facing challenges such as predators, diseases, weather conditions, and resource availability. The risk of mortality is higher in the early age of kids (Yitagesu and Alemnew 2022). According to several studies (Kumar *et al.*, 2003; Dohare *et al.* 2013), 10% of adult goats and 20% of young goats die annually on average. Therefore, the mortality pattern of the farm should be

known in order to decide the different managerial practices.

METHODOLOGY

A. Animals and data collection

Total of 504 mortality records of Sirohi goat kids, belonging to the field unit of AICRP on goat improvement and farm unit at Bojunda (Chittorgarh) for 6 years (2015-2021) were analyzed. Data on number of animals died were classified as per their respective month of death (January-December) and age of kid. Age-wise survivability was classified into different age groups *viz.*, 0-3 months, 3-6 months and 6-12 months of age.

B. Managerial practices

The goat under the both farm and field condition were maintained mostly under semi-intensive management system. Goats were maintained on pasture land with 6-8 hours of grazing every day. Supplementary feeding with concentrate mixture and cultivated fodder were made available to animal. Stall feeding was usually avoided by farmers during monsoon season due to availability of lush green pasture. The various types of trees, shrubs and grasses were available in the grazing area during different season.

C. Statistical analysis

Least-square analysis of survivability of kids at different age group 0-3, 3-6, 6-12 month of age was estimated through least square mean and maximum likelihood method designed by Harvey (1990) from the following statistical general linear model:

$$Y_i = \mu + A_i + e_{ij}$$

Where:

Y_i = Survivability of kid of born in i^{th} month

μ = Overall Population mean

A_i = Effect of i^{th} month

RESULTS AND DISCUSSION

The estimates of overall least-squares means of survivability at 0-3 month, 3-6 months and 6-12 months of age in Sirohi kids are 94.09 ± 0.511 , 86.23 ± 1.617 and 93.22 ± 1.708 , respectively as given in Table 1. The present finding was in close agreement with Toplu and Altinel (2008) as 95.44% in Antolian Black Goats at 0-3 months of age whereas lower values were reported by Hailu *et al.* (2006) as 69% in Arsi-Bale and Borana kids, Ershaduzzaman *et al.* (2007) as 71% in Black Bengal goats. Sabapara and Deshpande (2010) also reported the survivability of kids as 91.91% in Surti goats during 3-12 months of age. Dohare *et al.* (2013) observed the survivability as 71.43% in goats of 6-9 months of age.

At 0-3 months of age highest least-squares means of survivability of kid was observed as $97.85 \pm 1.616\%$ in September month and lowest least-squares means of survivability was in April month as $88.00 \pm 1.745\%$. April month marks the transition from winter to summer. Sudden changes in temperature, extreme weather events and fluctuations in environmental

conditions can stress kids and make them susceptible to diseases.

At 3-6 months of age highest least-squares means of survivability of kid was observed as $97.77 \pm 4.299\%$ in April month and lowest least-squares means of survivability was observed in December month as $55.14 \pm 5.389\%$. Dohare *et al.* (2013) shows the same pattern of mortality. This much mortality in December might be due to cold stress that can lead to hypothermia, weaken the immune system and make them more vulnerable to respiratory distress.

At 6-12 month of age highest least-squares means of survivability of kid was observed as $99.00 \pm 12.580\%$ and lowest least-squares means of survivability was observed in July as $87.75 \pm 3.631\%$. Kashem *et al.* (2011) also reported the higher mortality in rainy season. July is the rainy month in research area that is peak period for certain parasites, including gastrointestinal worms. If goats are not on an effective deworming schedule or if parasite resistance is an issue, infestations can occur, leading to health problems and potential mortality.

The results of present study show more than 90% survivability in 0-3 months of age group indicates Sirohi breed is hardy and new born kids are more acclimatized to the environment and gets sufficient milk from mother to survive in early stage.

Table 1: Least-squares means and SE for month-wise survivability of Sirohi goat kids at different age groups.

Month	Survivability (%) at		
	0-3 months	3-6 months	6-12 months
Overall	94.09 ± 0.511 (244)	86.23 ± 1.617 (115)	93.22 ± 1.708 (145)
January	97.17 ± 0.722 (35)	97.27 ± 2.910 (24)	95.14 ± 3.362 (14)
February	98.17 ± 0.438 (95)	80.42 ± 5.389 (7)	90.50 ± 8.895 (2)
March	96.70 ± 0.956 (20)	78.57 ± 3.271 (19)	94.00 ± 7.263 (3)
April	88.00 ± 1.745 (6)	97.77 ± 4.299 (11)	99.00 ± 12.580 (1)
May	92.66 ± 2.468 (3)	95.83 ± 5.821 (6)	95.50 ± 6.290 (4)
June	91.66 ± 2.468 (3)	96.60 ± 6.377 (5)	89.28 ± 4.755 (7)
July	89.00 ± 2.468 (3)	92.50 ± 10.083 (2)	87.75 ± 3.631 (12)
August	88.50 ± 3.023 (2)	88.60 ± 6.377 (5)	97.60 ± 2.623 (23)
September	97.85 ± 1.616 (7)	82.37 ± 5.041 (8)	96.23 ± 2.157 (34)
October	94.07 ± 1.142 (14)	80.00 ± 4.509 (10)	88.18 ± 3.145 (16)
November	97.67 ± 0.676 (40)	89.81 ± 4.299 (11)	95.43 ± 3.145 (16)
December	96.62 ± 1.069 (16)	55.14 ± 5.389 (7)	90.00 ± 3.489 (13)

The number of observations are given in parentheses, SE = standard error

CONCLUSIONS

This study confirms that overall survivability rates were $94.09 \pm 0.511\%$, $86.23 \pm 1.617\%$ and $93.22 \pm 1.708\%$ in 0-3, 3-6, 6-12 months of age respectively. Month wise survivability of kids at 0-3 months of age was observed

highest in September ($97.85 \pm 1.616\%$) and lowest in April ($88.00 \pm 1.74\%$). Month wise survivability of kids at 3-6 months of age was observed highest in April ($97.77 \pm 4.299\%$) and lowest in December ($55.14 \pm 5.389\%$). Month wise survivability of kids at 6-12 months of age was observed highest in April ($99.00 \pm 12.580\%$)

and lowest in July (87.75 ± 3.631 %). Management practices aimed at improving the health and survival of goats need to focus on countering unfavourable factors.

FUTURE SCOPE

The study of survivability in goats has the potential to contribute to sustainable agriculture, biodiversity conservation, and the well-being of communities dependent on goat farming.

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Conflict of Interest. None.

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