

# Growth rate and survivability patterns in Jamunapari breeds of goats under farm conditions in Mahoba district of Bundelkhand region

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## ABSTRACT

The present investigation was carried out in the breeding and migratory tracts of jamunapari goat in district Mohoba of Bundelkhand region of Uttar Pradesh. For study, data were collected from 10 villages of belonging to Jaitpur block of the Mohoba district in 2012-2013. The climate of the breeding and migratory tracts was hot, semi-arid and tropical in nature with matching vegetation and cultivated crops. The average migratory flock size was  $58 \pm 3.71$  (range 30-100). In stationary flocks the size ranged between 2 and 35 with an average of 17. The average flock contains  $16.0 \pm 2.57$  individuals (range 8 to 41), of which 0.25% adult males, 8.65% adult females and 7.1% young. It has been observed that Feeding system significantly affected body weights and weight gain at all the growth stages and. In stationery tracts approximately diarrhea 21.7%, pneumonia 7.1%, parasitic disease 5.5%, F.M.D. 4.9%, Nutritional disease 10.6%, Blot 6.7%, P.P.R. 11.5%, enterotoxaemia 8.4% and unknown other diseases 5.9% were found. In Migratory tracts approximately diarrhea 24.5%, Phenomena 9.6%, Parasitic disease 7.8%, F.M.D. 6.6%, Nutritional disease 12.8%, Blot 8.2%, P.P.R. 13.7%, enterotoxaemia 10.1% and unknown other diseases 7.4%, which were found to have more than stationery tracts. The study revealed that jamunapari goat was reared under traditional method of rearing with less scientific management practices.

**Keywords:** Breeding, Feeding, Jamunapari goat, Management.

Jamunapari goat is a prominent goat breed of Uttar Pradesh. It has a distinguish characteristic long ear & Roman nose. Their origin place is chakarnagar tahsil of Etawah district. It is tallest breed of goat and reared as dual purpose milk and meat production in North India. It is recognized by the Indian Council of Agricultural Research (Report, 2003). Even though studies have been conducted on the breeding and performance characters (Patnaik et al., 1988 and Saine et al., 1988). Distribution, population size, flock composition and breed characteristics of goats were reported by (Prasad et al. 2013). The several results were reported by scientist on the basis of the study of organized farmers and in adopted farmer flocks.

This breed is kept for dual purpose as well as good returns. The economic and reproductive information is scants in this area so the present study was under taken the Growth rate and survivability patterns in jamunapari breeds of goats under farm condition in Mahoba district of Bundelkhand region.

## Materials and Methods

The present investigation was carried out in the breeding and migratory tracts of jamunapari goat in district Mohoba of Bundelkhand region of Uttar Pradesh. For study, data were collected from 10 villages of belonging to Jaitpur block of the Mohoba district in 2012-2013 using a well defined pretested

questionnaire through personnel interview method. Information on the climate viz., temperature, rainfall, humidity etc. was collected from the Meteorological Department of the district. The data on vegetation and crops were collected in the breeding and migratory tracts and various goat management practices viz. flock size, housing, feeding, breeding, disease, and other husbandry practices were collected based on personal observation and information provided by the farmers in their village.

## Results and Discussion

### Management practices

The present flock statistics revealed that large numbers of jamunapari goat were owned by farmers in Jaitpur village of Mohoba district. The average migratory flock size was  $58 \pm 3.71$  (range 30-100). In stationary flocks the size ranged between 2 and 35 with an average of 17. The average flock contains  $16.0 \pm 2.57$  individuals (range 8 to 41), of which 0.25% adult males, 8.65% adult females and 7.1% young (Table 1). The average flock size was noted higher than that reported by Acharya (1982).

### Housing

In Mahoba district housing was not provided for the migratory flocks. The goats were penned in the open harvested fields during nights. Barbary goats are generally housed in thatched sheds inside the house. In general tellicherry goats were also housed in open harvested fields (Thiruvankadan *et. al.* 2009). However, for Barbary goat both open (65.19%) and closed (34.81%) type of housing was practiced (Dutt, 1968). The pen for jamunapari goat was fenced with wire fencing of about 4 to 5 feet height supported by bamboo or iron rods. The area of fencing for an average flock (size of 100) was 10m X 10 m. Penning site was changed almost every day and during the time of changing, the goats were let loose in the empty fields. The doe in advanced pregnancy were also sent for grazing along with the flock. The new-born kids were housed in the kids hut up to 15 days during daytime and were allowed with their dams during night. Then the kids were joined with the adults. Kids hut was usually made up of palash leaves and soil supported with bamboo and was placed within the fence in the migratory flocks. Even during rainy season, no protection was provided to the goats and

goat keeper except to the young kids, which were kept inside the kids hut. In the stationary flocks, housing was of open-type with the side protection made up of leaves and wooden reapers or bamboos. Present results were in agreement to those reported by Singh *et. al.* (2010) and Ekambaram *et. al.* (2011).

### Feeding

In Mohoba district, the animals are mainly reared on extensive grazing up to 2 to 5 km in the harvested fields, barren and uncultivable lands, roadsides and forest areas. No fodder is grown separately for feeding the goat. Goats in grazing areas were looked after by girls, women, male children and aged people. Kids were provided suckling twice a day (morning and evening) up to the age of 3 months. Kids born in a large flock, however, weaned little early (2-3 months) and were sent for grazing as a flock up to the age of 5-6 months. Rai and Singh (2004) and Singh *et. al.* (2009) also reported that goats were reared primarily on grazing with little external inputs. The farmers who keep large flocks, graze their goats by own, whereas, those who keep small flock, many goats on migratory grazing. Grazing varied from 5 to 8 hours. The main sources of grazing were tree, stubbles, weeds, herbs and grasses. No concentrate supplementation was given to the kids and adults during migratory tracts. The supplementation of concentrate ration was given only to lactating goats at the rate of 50-100 grams/goat/day in stationary tracts. Singh *et. al.* (2013) was also observed concentrate mixture was provided only to lactating goat @100-150 grams/goat/day. Where as breeding buck & few goat farmers were provide 200-250 grams concentrate/day/goat. The concentrate mixture was providing to goat only 130 grams/day/goats for 128 days in Mahoba district. The concentrate was mostly fed in the winter season when grazing, was restricted due to crops cultivation. During heavy rainy days, the goats were not taken out for grazing. Watering was done 2 or 3 times a day based on the season and availability and the sources are hand pumps, ponds or wells. The feeding practices were in general similar to the earlier reports of Saran *et. al.* (2000) and Mathur *et. al.* (2009).

### Effect of feeding management

It has been observed that Feeding system significantly ( $P < 0.01$ ) affected body weights and weight gain at all

the growth stages and ages. Higher body weights and ADG of goats reared under stationary feeding were obvious due to green fodder, ration and better management. Higher ( $P<0.01$ ) performance of goats right from birth in the category of stationary tracts group could be due to preferential allotment of goats for stationary tracts (Table 2). The average body weight of male and female at 0-3, 3-6, 6-9 and 9-12 months under stationary tracts were M-9.83±3.56 F-9.04±2.25, M-15.85±1.09 F-13.98±2.43, M-21.71±1.85 F-20.44±1.31 and M-28.75±3.59 F-26.12±2.36 kg, respectively, which were M-7.78 F-6.60, M-11.22 F-10.58, M-9.53 F-9.12 and M-7.63 F-6.30% higher and significantly different than those reared under migratory tracts. Weight gain/day in stationary tracts goats was higher as male and female 7.11% and 6.49% during 0-3 month, 20.43% and 15.05% during 3-6 month, 16.76% and 13.32% during 6-9 month and 15.72% and 11.64%, during 9-12 month, respectively ages over goats reared under migratory tracts system as shown in Table 3. However, Saini *et al.* (1986) reported significant difference between stall-fed and semi-intensive fed kids but with small (2%) magnitude in weight gains of Jamunapari kids during 3-6 months. However, Shinde *et al.* (2000) reported higher body weights and gains of kids raised under semi-intensive feeding as compared to intensive feeding system. Higher body weight and growth rate of goats with large magnitude under stationary tracts might be attributed to preferential allotment of goats.

**Table1. Flock statistics of jamunapari goat**

Village	Number of flocks		Goat population
	Stationary	Migratory	
Ajnar	74	10	764
Mangrole kala	46	06	436
Mangrole khurd	31	04	313
Laadpur	67	09	669
Jaitpur	81	11	887
Budhaura	41	05	419
Chhitarwara	34	04	342
Lamaura	57	07	568
Magaria	49	05	474
Atarpatha	30	0s3	292
Total	510	64	5164

**Table 2. Body weight of jamunapari goat under stationary and migratory tracts**

Age / month's	Body weight (kg)		Change (%)
	Stationary Tracts	Migratory tracts	
0-3 M	9.83±3.56	9.12±2.42	7.78
F	9.04±2.25	8.48±1.54	6.60
3-6 M	15.85±1.09	14.25±2.43	11.22
F	13.98±2.43	12.76±1.91	10.58
6-9 M	21.71±1.85	19.82±2.16	9.53
F	20.44±1.31	18.73±1.82	9.12
9-12 M	28.75±3.59	26.71±2.24	7.63
F	26.12±2.36	24.57±1.73	6.30

**Table 3. Daily weight gain of jamunapari goat under stationary and migratory tracts**

Age / month's	Daily body weight (gm)		Change (%)
	Stationary tracts	Migratory tracts	
0-3 M	87.43±7.65	81.62±4.73	7.11
F	74.42±4.29	69.88±2.94	6.49
3-6 M	60.24±4.34	50.02±3.21	20.43
F	48.16±3.66	41.86±4.38	15.05
6-9 M	45.68±4.75	39.12±3.36	16.76
F	36.82±3.48	32.49±2.50	13.32
9-12 M	39.07±5.52	33.76±4.68	15.72
F	32.13±3.63	28.78±3.54	11.64

**Table 4. Diseases of mortality goat among different tracts**

Diseases	Breed	
	Stationary	Migratory
Diarrhea	21.7	24.5
Pneumonia	7.1	9.6
Parasitic diseases	5.3	7.8
F.M.D.	4.9	6.6
Nutritional	10.6	12.8
Bloat	6.7	8.2
P.P.R	11.5	13.7
Enterotoxaemia	8.4	10.1
Unknown (others)	5.9	7.4

### **Breeding**

Observations on breeding aspect recorded that uncontrolled natural mating took place throughout the year as buck and doe were grazed and penned together. The flock consists of mostly breeding Doe and breeds able to replacement females. Bucks were not exchanged between flocks, even if a single farmer owned more than one flock. The only time some exchange might take was when two or more flocks were penned together during nights while on migration. The Buck and male goats are seen only in limited number. Even for 10-15 breed able Doe only one Buck is used. In some of the villages only one Buck is used for different flocks. Males were selected based on growth, body size and health status from 9 to 12 months of age. In accordance to our findings Singh *et. al.* (2008) also recoded the same pattern of breeding.

### **General Management**

In each flock (an average size of 100), 2 or 3 goat keepers were employed. Experienced goat keepers attended day to day flock management including treatment of sick animals. The flock owner or one of his male family members regularly visited the flock once in a week, stayed with the flock for one to two days and arranged for the new penning site. However, during the kidding season, sale of goat and outbreak of diseases, he stayed with the flock for longer duration. Every day, the routine started around 6AM. One or two goat keepers were involved in the preparation of food and supper near the penning site. The remaining goat keepers were engaged in shifting of fence to the new penning site, treatment of sick animals and feeding of weak young kids with milk from other doe. Goat were taken out for grazing around 8 am and brought back in the evening around 6-7 PM after continuous grazing and the goat keeper remained with the flock throughout night.

### **Prevalence of disease and healthcare**

Jamunapari goat were reported to be affected by Enterotoxaemia, Pest Des petits Ruminants (PPR), Goat pox, Pneumonia, Colibacillosis, Anemia, Diarrhea, Foot-rot, Foot and Mouth Disease and Parasitic diseases. In stationary tracts Jamunapari goats were generally vaccinated annually against

Enterotoxaemia, PPR and Goat pox. They were almost drenched regularly with anthelmintics once in 3 or 4 months to reduce the burden of endo parasitic infestations. Table-4 showed the diseases of mortality in different migratory and breeding track. In stationery tracts approximately diarrhea 21.7%, pneumonia 7.1%, parasitic disease 5.5%, F.M.D. 4.9%, Nutritional disease 10.6%, Blot 6.7%, P.P.R. 11.5%, enterotoxaemia 8.4% and unknown other diseases 5.9% were found. In Migratory tracts approximately diarrhea 24.5%, Phenomena 9.6%, Parasitic disease 7.8%, F.M.D. 6.6%, Nutritional disease 12.8%, Blot 8.2%, P.P.R. 13.7%, enterotoxaemia 10.1% and unknown other diseases 7.4%, which were found to have more than stationery tracts. Because in stationery tracts time to time vaccination, balance rations, better management is practiced in goats. The kid mortality during different stages indicates that 50% of the death inflicted in the first month and about 25% in the first week of birth, another peak in death from 3rd and 5th month when their milk is completely withdrawn from the diets (Gurjar *et al.*, 2008). The kid mortalities are varying from 10 to 74% in crossbreds as well as in native breeds of animals. Particularly in large flocks and could be attributed to overcrowding and unhygienic management of kids (Singh *et al.*, 2013).

### **Conclusions and specific recommendations**

On the basis of above observations it can be concluded that Jamunapari goat is tall sized, dual purpose goat and well adapted to the environmental conditions of the Mohoba district of the Bundelkhand region such as heat, cold, humidity, water scarcity and seasonal fluctuation in feed availability in terms of quality and quantity as well as disease outbreaks. It shows excellent feed conversion efficiency under extreme conditions. The Jamunapari goat is preferred by local farmers because of their high milk production and high dressing percentage. The results of the present study also revealed that there is a vast scope for increasing the productivity of this breed. Due to better feed conversion ratio, low input and less risk goat keeping is much profitable enterprises in Mahoba district of Bundelkhand region

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