

## Research Article



# Rearing Practices, Production Performance and Reproductive Problems of Cattle of Budgam District in Kashmir Valley

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**Abstract** | The current study was carried to know the rearing practices, production performance and reproductive problems in cattle of Budgam district. A total of 421 livestock rearing households from all the eight blocks of Budgam district were surveyed. Majority (47.37%) of the livestock rearing people had agriculture as their major income. 77% of cattle were phenotypically predominant exotic crossbred and 23% were indigenous crossbred, however very rare cases of true indigenous cattle were found. Most (78.11%) of the livestock owners preferred intensive management of rearing where by the animals are stall-fed. Majority of livestock sheds presented unsatisfactory hygienic look with only 10.80% houses having satisfactory hygiene. Among surveyed dairy cattle, 85.24% animals were in milking stage and the rest 14.85% animals were in drying stage including the pregnant heifers. Very less number (3.03%) of the farmers were using supplementation in the form of vitamins or minerals for the animals. An average of 6.33 years age and 253.10 kg weight was observed. The average milk yield of study district was 5.70 litre with highest average milk yield (7.13 litre) in Narbal block and lowest in Khag block (5.12 litre). The average concentrates offered on dry matter basis were 1.89 kg and mixed roughages up to 5.10 kg per animal. 41.8% animals had reproductive problems with repeat breeding in 14.51%, mastitis in 7.20% and still birth in 0.23% of total animals. The average service period reported was 6.95 months with Khag block having the highest 8.53 months. The study revealed the unawareness of good rearing practices among the livestock owners and their satisfaction on low production. It seems that the Budgam district has a potential of high milk production if advanced nutritional and managerial interventions are carried, whereas simultaneous veterinary interventions are needed to treat reproductive problems and reduce service period.

**Keywords** | Budgam, Management, Milk yield, Reproductive, Service period

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## INTRODUCTION

Agriculture and livestock sector continues to be a major income source in India. Livestock plays a vital role in providing nutritive food, rich in animal protein, and also helps in supplementing family incomes and generating gainful employment in the rural sector by providing draught animal power for agriculture. Presently, India has total bovine population (Cattle, Buffalo, Mithun and Yak) of 299.9 million. With a cattle population of 199 million, India is holding the second highest position in world. The

exotic/crossbred milch cattle are 19.42 million, whereas the indigenous milch cattle are 48.12 million (Census, 2012). Most of the indigenous cattle breeds are either draught type or dual purpose. With the modernization of agriculture, the use of mechanical power in agriculture has increased but draught animal power (DAP) continues to be used on Indian farms due to smallholdings and less input resources to the farmers.

Countries like India are deficient in animal feeds both quantitatively and qualitatively, that in turn affects the

health and profitability of livestock. According to Wali (2009) there is deficit of 35% in concentrates, 28% in green fodder and 11% in dry forage. Animal productivity is limited primarily due to shortage of available energy and protein, infectious and parasitic disease, genetic inadequacies, and above all inappropriate mineral balance. The state of Jammu and Kashmir is no exception where animals are reared under semi-intensive system in summers and intensive system is opted in winters. The demand-supply scenario of the fodder revealed 7,459 thousand metric tonnes of fodder availability over the estimated requirement of 12,563 thousand metric tonnes for livestock population of 10,938 thousand. Like wise, the state of Jammu and Kashmir is 40% deficit in fodder on dry matter basis and the deficiency is more pronounced in the segments of green fodder and concentrates (Wani et al., 2014). The optimum and economic production is governed by adoption of optimal system of feeding from locally available resources along with supplementation of deficient nutrients. Also the productivity is marred by poor management, diseases and low reproductive health.

There has been hardly any study to infer the performance of livestock in Budgam district so the current study was aimed to survey the rearing practices followed in the district by dairy farmers along with the production performance and reproductive health of the animals.

## MATERIALS AND METHODS

### STUDY AREA

Budgam district is rich in livestock wealth with 8.57 lac population besides having the central location with boundaries shared with four major districts of Kashmir valley. Budgam is one of the youngest districts of the State, carved out from the erstwhile District Srinagar in 1979. Situated at an average height of 5,281 ft above sea-level and at 75 degree E longitude and 34 degree N latitude, the district was known as Deedmarbag in ancient times. The topography of the district is mixed with both mountainous and plain areas. The climate is of the temperate type with the upper-reaches receiving heavy snowfall in winter. The average annual rainfall of the district is 585 mm. While the southern and southwestern parts are mostly hilly, the eastern and northern parts of the district are plain. The average height of the mountains is 1,610 m and the total area under forest cover is 477 sq. km. The soil is loose and mostly denuded karewas dot the landscape. Paddy and maize are the main crops while as pulses and vegetables are also grown in different pockets of the district.

### STUDY DESIGN

A pre-tested questionnaire was prepared to know the various parameters from the dairy owners. The surveyor judged

many of the parameters like breed, hygiene himself. A total of 422 livestock rearing houses were surveyed from all eight blocks (Beerwa, Narbal, Khag, Chadoora, Nagam, BKPora, Khansahib and Budgam) of the district. All data used was from primary sources.

### DATA PROCESSING AND ANALYSIS

The percentage and prevalence of various parameters were determined as a proportion of observed out of the total animal examined. Data processing was made on MS-excel sheet. Statistical analysis of data was done using one way ANOVA (Snedecor and Cochran 1994). The data were processed as per SPSS software for Windows.

## RESULTS AND DISCUSSION

The income sources of livestock rearing people in various blocks and the district is shown in Table 1. Out of the surveyed population, majority (47.37%) of the livestock rearing people had agriculture as their major income with the same dominating in each block of the district. The results were in accordance with the reported values in Economic Survey of J&K, (2014). Around 70% of the population in the State gets livelihood directly or indirectly from the agriculture and allied sectors. It elucidates the importance of interdependence of agriculture and livestock rearing. Average land holding was 7.42 kanals with 5.04 kanals irrigated land and 2.37 kanals as non-irrigated land (Table 3). Ganai et al. (2004) reported similar irrigated land holding in the Srinagar, however the non-irrigated land is less in Budgam than reported in Srinagar. The more irrigated land may be due to topographical location of the district, which harbours various natural water resources and glaciers.

Out of the total animals surveyed 77% were reported to be crossbred, with 63.54% crossbred Jersey, 13.46% crossbred Holstein Friesian and remaining 23% were local and other crosses. It is worth mention that the crossbreds were decided on the basis of phenotypic characters only and no exotic percentage was evaluated in survey. The significant increase in crossbred cattle population could be due availability of exotic semen at veterinary centers and also because of wider acceptability of Jersey crosses in the temperate regions like Kashmir. Jersey has been associated with better adaptability to high altitude conditions and higher fat percentage in milk (Dinesh et al., 2014). Another reason may be the import of large number of milch cattle from states like Haryana and Punjab, thus replacing the low performing indigenous cattle.

Most (78.11%) of the livestock owners preferred intensive management of rearing where by the animals are stall-fed (Table 1). The same may be due to non availability of local natural pastures and occupation of the land by various cultivated crops. Harsh winters also compel the farmers to

**Table 1:** Percentage showing income source, breeds and rearing practices prevalent in various blocks of Budgam district

| Parameters        |                | Beerwa | Narbal | Khag  | Chadoora | Nagam | BKPora | Khansahib | Budgam | Average in district |
|-------------------|----------------|--------|--------|-------|----------|-------|--------|-----------|--------|---------------------|
| Income source     | Agriculture    | 41.82  | 47.37  | 47.06 | 38.03    | 56.36 | 51.43  | 40.82     | 24.32  | 43.40               |
|                   | Employee       | 27.27  | 28.95  | 14.71 | 21.13    | 7.27  | 11.43  | 20.41     | 27.03  | 19.77               |
|                   | Skilled Labour | 7.27   | 2.63   | 5.88  | 12.68    | 10.91 | 14.29  | 12.24     | 10.81  | 9.59                |
|                   | Labour         | 23.64  | 21.05  | 32.35 | 28.17    | 25.45 | 22.86  | 26.53     | 37.84  | 27.24               |
| Management        | Intensive      | 83.64  | 94.74  | 64.71 | 74.65    | 69.09 | 82.86  | 71.43     | 83.78  | 78.11               |
|                   | Semi intensive | 16.36  | 5.26   | 35.29 | 25.35    | 30.91 | 17.14  | 28.57     | 16.22  | 21.89               |
|                   | Extensive      | 0.00   | 0.00   | 0.00  | 0.00     | 0.00  | 0.00   | 0.00      | 0.00   | 0.00                |
| Hygiene           | Satisfactory   | 12.73  | 28.95  | 2.94  | 4.23     | 1.82  | 11.43  | 0.00      | 24.32  | 10.80               |
|                   | Unsatisfactory | 87.27  | 71.05  | 97.06 | 95.77    | 98.18 | 88.57  | 100.00    | 75.68  | 89.20               |
| Breed*            | CBJ            | 65.45  | 76.32  | 58.82 | 60.56    | 49.09 | 68.57  | 67.35     | 62.16  | 63.54               |
|                   | CBF            | 12.73  | 7.89   | 5.88  | 21.13    | 29.09 | 8.57   | 14.29     | 8.11   | 13.46               |
|                   | CBO            | 21.82  | 15.79  | 35.29 | 18.31    | 21.82 | 22.86  | 18.37     | 29.73  | 23.00               |
| Supplementation   | Followed       | 3.64   | 2.63   | 2.94  | 0.00     | 3.64  | 11.43  | 0.00      | 0.00   | 3.03                |
|                   | Not followed   | 96.36  | 97.37  | 97.06 | 100.00   | 96.36 | 88.57  | 100.00    | 100.00 | 96.97               |
| Production status | Milking        | 80.00  | 71.05  | 88.24 | 92.96    | 85.45 | 88.57  | 100.00    | 75.68  | 85.24               |
|                   | Dry            | 20.00  | 29.73  | 11.76 | 7.04     | 14.55 | 11.43  | 0.00      | 24.32  | 14.85               |

\*CBJ-crossbred Jersey; CBF-crossbred Holstein-Friesian; CBO-indigenous & crossbred others.

**Table 2:** Prevalence (%) of reproductive problems in Budgam district

| Reproductive Problems   | Beerwa | Narbal | Khag  | Chadoora | Nagam | BKPora | Khansahib | Budgam | Average in district |
|-------------------------|--------|--------|-------|----------|-------|--------|-----------|--------|---------------------|
| Abortion                | 0      | 5.26   | 0     | 1.41     | 1.82  | 17.14  | 2.04      | 10.81  | 4.81                |
| Dystocia                | 1.82   | 0.00   | 2.94  | 2.82     | 0.00  | 11.43  | 4.08      | 0.00   | 2.89                |
| Retained fetal membrane | 0      | 2.63   | 5.88  | 2.82     | 5.45  | 0.00   | 2.04      | 2.70   | 2.69                |
| Repeat breeding         | 23.64  | 10.53  | 17.65 | 12.68    | 20.00 | 8.57   | 12.24     | 10.81  | 14.51               |
| Still birth             | 1.82   | 0.00   | 0     | 0.00     | 0.00  | 0.00   | 0.00      | 0.00   | 0.23                |
| Uterine prolapse        | 0      | 0      | 0     | 1.41     | 0.00  | 0.00   | 2.04      | 0.00   | 0.43                |
| mastitis                | 3.64   | 5.26   | 8.82  | 7.04     | 14.55 | 0.00   | 10.20     | 8.11   | 7.20                |
| Anestrus                | 0      | 0      | 5.88  | 0.00     | 1.82  | 5.71   | 0.00      | 0.00   | 1.68                |
| Vaginal Prolapse        | 1.82   | 0.00   | 0     | 1.41     | 0.00  | 0.00   | 2.04      | 0.00   | 0.66                |
| Mixed                   | 16.36  | 5.26   | 2.94  | 4.23     | 3.64  | 17.14  | 4.08      | 0.00   | 6.71                |
| Problem not reported    | 50.91  | 71.05  | 55.88 | 66.20    | 52.73 | 40.00  | 61.22     | 67.57  | 58.20               |

go for intensive management. Only 21.89% farmers allowed the cattle to graze which indeed is worth concern as stall-feeding is costlier. Among farmers who graze animals, 5.90% allowed grazing of cattle for less than 5 hours while 15.99% allowed for 6-8 hours. The over all average grazing hours was just 1.49 hours which depicts the sole dependence of animals on stall feeding (Table 3).

Majority of livestock sheds presented unsatisfactory hygienic look with only 10.80% houses having satisfactory hygiene (Table 1). Unsatisfactory hygiene not only makes animal prone to diseases but also decreases the production potential of the animal.

The cattle mostly reared were dairy animals with rare cases

**Table 3:** Land holding, production parameters, feed consumed and average service period in cattle of Budgam district

| Parameters                  | Beerwah     | Narbal       | Khag         | Chadoora    | Nagam       | BKpora      | Khansahib   | Budgam      | Average in District |
|-----------------------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|---------------------|
| Irrigated Land (kanals)     | 4.29±0.44   | 7.29±0.92    | 4.74±0.59    | 5.00±0.81   | 3.65±0.46   | 6.49±0.61   | 5.31±0.52   | 4.68±1.49   | 5.05±0.27           |
| Non Irrigated Land (kanals) | 2.69±0.43   | 3.24±0.53    | 1.88±0.48    | 1.93±0.33   | 4.05±0.74   | 1.46±0.26   | 2.53±0.46   | 0.43±0.13   | 2.37±0.18           |
| Approximate Age (Years)     | 6.13±0.36   | 5.74±0.34    | 5.88±0.41    | 6.52±0.22   | 6.91±0.29   | 6.46±0.32   | 6.90±0.29   | 5.57±0.26   | 6.33±0.11           |
| Average Body Weight (kg)    | 248.10±9.82 | 263.42±13.33 | 235.44±12.33 | 259.01±6.36 | 244.73±5.29 | 270.57±9.01 | 269.80±9.00 | 228.78±7.75 | 253.10±3.20         |
| Average Milk Yield (Litre)  | 5.24±0.49   | 7.13±0.72    | 5.12±0.61    | 5.51±0.27   | 5.65±0.32   | 6.60±0.50   | 5.37±0.29   | 5.43±0.51   | 5.70±0.16           |
| Parity                      | 2.44±0.24   | 2.24±0.25    | 2.18±0.25    | 2.45±0.14   | 2.82±0.18   | 2.63±0.26   | 2.49±0.18   | 2.19±0.21   | 2.45±0.07           |
| Concentrate (DM) (kg)       | 1.88±0.30   | 2.17±0.50    | 1.78±0.32    | 1.63±0.23   | 1.76±0.19   | 1.83±0.25   | 2.12±0.20   | 1.89±0.39   | 1.87±0.12           |
| Roughage (DM) (kg)          | 4.95±0.52   | 5.64±0.81    | 5.14±0.56    | 4.88±0.38   | 4.71±0.36   | 5.20±0.64   | 5.15±0.47   | 5.10±0.56   | 5.02±0.19           |
| Grazing Hours (hour)        | 1.6±0.38    | 0.29±0.20    | 2.38±0.57    | 1.58±0.31   | 1.73±0.36   | 0.91±0.35   | 1.90±0.41   | 1.19±0.31   | 1.49±0.13           |
| Service Period (months)     | 7.51±0.77   | 5.08±0.90    | 8.53±1.16    | 6.66±0.83   | 6.73±0.94   | 6.49±1.02   | 7.37±1.13   | 7.41±1.34   | 6.95±0.35           |

of draught animals. Among surveyed dairy cattle 85.24% animals were in milking stage and the rest 14.85% animals were in drying stage including the pregnant heifers. Out of all the 8 blocks of district, 100% animals in block Khansahib were in milking stage, which can be a sheer coincidence. The majority being in milking status reflects that drying up is followed for least period (15-20 days). However, the other reason may be the erratic practice of milking the cattle even way beyond lactation period and without being pregnant as a result no dry up period is observed.

Very less number (3.03%) of the farmers were using supplementation in the form of vitamins or minerals for the animals (Table 1). Hussain et al. (2011) reported similar results in district Kupwara. The same may be because of poor knowledge of farmers as reported by (Ganai et al., 2008; Bakshi et al., 2009) reported that 2.5% of the farmers in Ferozpur and 9.52% in Moga district of Punjab were feeding mineral mixtures to animals. The other reason for non supplementation may be the contend of farmers on low production sufficient to meet their daily demands. Most of the farmers are unaware about the production potential of their animals and profitability of rearing dairy animals.

The approximate age, average bodyweight, average milk

yield, parity, grazing hours, concentrates and roughages offered are given in Table 3. The average age of the animals was 6.33 years depicting the majority of households prefer younger cows. The average body weight was reported to be 253.10 kg again depicting preference of smaller and younger cows among the livestock farmers.

A wide variation in milk yield was observed within the blocks across the district, the average milk yield of district was 5.70 litre with highest average milk yield (7.13 litre) in Narbal block and lowest in Khag block (5.12 litre). It was observed that 49.12% animals yield less than 5 litre of milk, 46.05% animals yield 5-10 litre and only 4.82% animals yield >10 litre. The highest yield by any animal was reported 18 litre in Narbal block. The average milk yield was higher than state average of almost 4.15 litre. Average parity was 2.45 indicating that most of the animals were in second or third parity thus at better production age. The same is in well consonance with the average milk yield.

The average concentrates offered on dry matter basis were 1.89 kg and mixed roughages up to 5.10 kg per animal. The concentrates available were mostly wheat bran, rice bran, mustard oil cake, linseed cake and commercial pellet feed, where as the roughages were mostly rice straw, oats, lowe,

lawn grass, wetland grass, maize stovers. Paddy straw & lowe was available in abundance and fed commonly. Ganai et al. (2006) also reported paddy straw as main source of roughage in ration of animals in Kashmir. Hussain et al. (2011) reported similar use of concentrates and roughages in district Kupwara. Lowe (*Hypoxis hirsuta*) is a sub cured grass and rolled into ropes, harvested from paddy fields and fed as roughage in lean months (Tomar and Sharma, 2002).

The Table 2 shows the reproductive problems reported in various blocks. 58.20% animals were healthy with no distinct reproductive problem reported. Tesfaye and Shamble (2013) reported similar prevalence of reproductive health problems that out of total 231 dairy cows included in the study, 40.25% were found to be affected at least by one reproductive health problems. The least problem reported was stillbirth in 0.23% animals. Highest reported problem was repeat breeding prevalent in 14.51% animals and next to is mastitis in 7.20% animals. Ganai et al. (2008) reported 42.20% of the farmers reported reproductive problems in Kashmir valley.

The average service period reported was 6.95 months with Khag block having the highest 8.53 months (Table 3). The “days open” period should not exceed 80-85 days if a calving interval of 12 months is to be achieved (Malik, 1977). Exceeding of service period beyond 90 days is considered loss both in milk production and number of calves produced. Ali et al. (2000) reported that exceeding of service period >150 days in results in 1021 litres of milk loss. Profitable dairying requires re-establishment of ovarian activity soon after calving and high conception rates. The duration of this period is influenced by nutrition, season, milk yield, parity, suckling and uterine involution. At any time, the effects of one or more of these factors may be confounded. Calving interval has been extensively analyzed and is probably the best index of a cattle herd's reproductive efficiency (Dayyani et al., 2013).

## CONCLUSION

The study concluded that majority of the livestock rearing people in district budgam had agriculture as their major income and preferred intensive management of rearing where by the animals are stall-fed. The lack of quality hygiene, proper knowledge of nutrition and medication may be the reason behind low production and reproductive problems in the dairy cattle. The study reported the unawareness of good rearing practices among the livestock owners and their satisfaction on low production. Prolonged service periods contribute to the economic losses of farmers. There is dire need of nutritional interventions and proper knowledge of good rearing practices.

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## CONFLICT OF INTEREST

There is no conflict of interest among the authors and has no financial repercussions.

## AUTHORS CONTRIBUTION

All the authors contributed significantly to the paper. Author along with SA Beigh carried the study and compiled the results. AM Ganai, HA Ahmed and HM Khan designed the protocol, monitored the study and helped in statistical analysis.

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