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A survey on rearing practices and production constraints of dairy cattle in district Bandipora of Kashmir valley

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Abstract
The information in this study was acquired from 290 households of district Bandipora of Jammu and Kashmir as per standard questionnaire to ascertain dairy cattle rearing practices, productive performance and reproductive problems. It was observed that majority (51.23%) of the people had agriculture as the main source of income and 51.87% of the livestock owners preferred intensive animal rearing. 70.88% of cattle were exotic crossbred, while 29.12% were indigenous crossbred (phenotypically), however very few number of true indigenous cattle were found. A small population (5.90%) of the cattle were given supplementation in the form of minerals or vitamins. Among surveyed dairy cattle, 78.64% animals were in milking stage and the rest (21.36%) of animals were in dry stage. The average age and body weight of 5.99 years and of 242.68 kg was observed, respectively. An average milk yield was 5.92 litre with the highest average yield (7.75 litre) in Hajin block and lowest (4.54) in Gurez block. The average concentrate and roughages allowance on dry matter basis was about 1.67 kg and 5.02 kg per animal, respectively. Overall, 48.13% of farmers allowed the cattle to graze and majority preferred stall feeding only. Among the reproductive problems, the least prevalent problem was stillbirth in 0.78% animals and highest prevalent problem was repeat breeding reported in 12.51% animals. It was observed that there is a great scope for improvement in cattle rearing practices in district with proper health, nutritional and rearing management which otherwise stands hampered due to lack of awareness and improper management.

Keywords: Bandipora, Dairy cattle, Productive performance, Rearing practices, Reproductive problems

Introduction
India is an agrarian country where more than 65% population is directly or indirectly dependent on agriculture wherein, livestock sector contributes about 27.28% to agriculture sector and 4.11% to the total GDP of country (Census, 2012)[1]. Livestock plays a vital role in providing nutritious food (meat and milk) and providing employment in the rural sector. The total bovine population of the country is about 299.9 million, being the second highest in world, of which cattle constitute about 199 million (Census, 2012)[1]. Although being world number one in milk production, individual milk productivity of our indigenous animals as well as crossbred animals is comparatively lower than those in developed countries. Animal productivity is limited primarily due to shortage of available energy and protein resources, infectious and parasitic disease, genetic inadequacies, and above all inappropriate mineral balance (Ishfaq *et al*., 2017)[9].

India is deficient in animal feeds both quantitatively and qualitatively which in turn affects the health and profitability of livestock. There is deficit of 64% of concentrates, 61.10% of green fodder and 21.9% of dry forage (Datt, 2013) [2]. The state of Jammu and Kashmir is no exception where animals are reared under semi-intensive system in summers and intensively in winters (Ganai *et al.,* 2004) [7]. The demand supply scenario of the fodder revealed availability of 7,459 thousand metric ton of fodder against the estimated requirement of 12,563 thousand metric tones for livestock population of 10,938 thousand. Likewise, the state of Jammu and Kashmir has a deficit of 40% of fodder on dry matter basis and the deficiency is more pronounced in case of green fodder and concentrates (Wani *et al.,* 2014)[12]. Besides the nutritional factors, the productivity is also affected greatly by poor management, diseases and low reproductive health.

Scanty information is available on management and performance livestock in district Bandipora of Jammu and Kashmir. So, the current study was aimed to know the rearing

practices followed by the dairy farmers along with the production performance and reproductive health of the animals in the district.

Technical programme
Study area
The study was carried out in District Bandipora of Jammu and Kashmir. Bandipora district is one of the 22 districts of Jammu and Kashmir state. Bandipora town is the administrative headquarter of the district and is well connected by roads. This district was carved out from the erstwhile Baramulla district in 2007 and it is bounded by Kupwara district in the west, Baramulla district in the south and Kargil, Srinagar and Ganderbal districts in the east. The area is spread between 34°25'N to 34°41'N latitude and 74°39'E to 74°65'E longitude and is characterized by sub-humid temperate climate. It's elevation range is 1581 meters to 1578 above sea level. The geographical area of Bandipora district is 398 sq km, which harbors 3.85 lakh people with a total livestock population of 2.97 lakh. Paddy and maize are the main crops while as pulses and vegetables are also grown in some areas of the district.

Experimental design
The study was conducted under an integrated project by the Division of Animal Nutrition, FVSc & AH, Shuhama, SKUAST- Kashmir, wherein all the district of Kashmir valley are to be assessed to collect baseline information about managemental practices and performance of livestock. A pretested questionnaire was prepared to collect the information regarding the various parameters from the dairy owners in the all four blocks of the district (Bandipora, Gurez, Hajin and Sumbal), a total of about 290 livestock rearing houses were surveyed and all the information was taken from the primary sources.

Data processing and analysis
The data was recorded on MS-excel sheet. The percentage and prevalence of various parameters was determined as the proportion of observed out of the total surveyed households. Statistical analysis of data was done using one way ANOVA (Snedecor and Cocharan 1994) [10] using SPSS software for Windows.

Results and Discussion
The sources of income of livestock rearing people in various blocks of district Bandipora is shown in Table 1. Out of the total surveyed population in district, majority (51.23%) of the livestock rearing people had agriculture as their main source of income with the same trend in each block of the district. These results are in accordance with the reported values (Economic Survey of J&K, 2014)[4], according to which, around 70% of the population in the State gets livelihood directly or indirectly from the agriculture and allied sectors. Average land holding in the district is 8.07 kanal with irrigated and non-irrigated land as 4.64 and 3.43 kanal respectively. Ganai et al. (2004) [7] and Ishfaq et al. (2017) [9] reported more or less similar land holdings in the different districts of Kashmir valley.

Table 1: Income source, land holding, rearing practices and breeds prevalent in various blocks of district Bandipora

Parameters		Bandipora	Gurez	Hajin	Sumbal	District
Income source	Agriculture	40.93	58.85	53.45	51.94	51.23
	Employee	24.75	21.95	17.74	19.83	21.07
	Skilled Labour	6.61	2.74	4.46	5.54	4.84
	Labour	27.71	16.46	24.35	22.69	22.80
Irrigated Land (kanals)		3.97 ±0.75	2.61 ±0.47	6.75 ±0.51	5.24 ±0.53	4.64 ±0.57
Non Irrigated/ Rainfed (kanals)		4.84 ±0.72	2.75 ±0.53	2.63 ±0.65	3.75 ±0.47	3.43 ±0.59
Rearing	Intensive	71.75	11.17	43.12	81.43	51.87
	Semi intensive	28.25	88.83	56.88	18.57	48.13
	Extensive	0.00	0.00	0.00	0.00	0.00
Hygiene	Satisfactory	27.64	13.65	21.75	22.87	21.48
	Unsatisfactory	72.36	86.35	78.25	77.13	78.52
Breed*	CBJ	57.65	49.96	42.64	41.86	48.02
	CBF	21.78	2.87	31.16	35.62	22.86
	CBO	21.35	47.17	26.20	22.52	29.12

*CBJ-crossbred jersey; CBF-crossbred Friesian; CBO-crossbred others and local

Majority (51.87%) of the livestock owners preferred intensive management of rearing where by the animals are stall-fed with only 2.64 hr/day of grazing. This may be partly due to climatic conditions where harsh winters compel the farmers to go for intensive management (Ishfaq et al., 2017)[9] and partly due to non-availability of local natural pastures and occupation of the land by various cultivated crops. The highest percentage of intensive cattle rearing was observed in Sumbal block (81.43%) and least in Gurez (11.17%), which indicates low grazing land availability in urbanized areas (Sumbal and Bandipora) against hilly or rural areas (Gurez and Hajin) where plenty of land is available for grazing. Majority (78.52%) of livestock sheds were with unsatisfactory hygienic condition. Bandipora block showed comparatively better hygiene (27.64%) followed by Sumbal (22.87%), Hajin (21.75%) and Gurez block (13.65%). Unsatisfactory hygiene not only makes animals prone to diseases but also decreases the production potential of the animals (Ishfaq et al., 2017)[9]. Out of the total animals surveyed 70.88% were crossbred, with 48.02% crossbred Jersey (CBJ), 22.86% crossbred Holestein Friesian (CBF) and remaining 29.12% were locals or local crosses (CBO). Bandipora block was having highest CBJ crosses (57.65%), Sumbal was having highest CBF crosses (35.62%) and Gurez with highest CBO (47.17%) including the Zho/Zombo (Cattle and Yak hybrid) as well. Zombo was reported to have better adaptability and potential for milk production which may be because of proximity of Gurez to the Kargil area of Ladakh. The significant increase in crossbred cattle population could be due to 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) [3]. 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.

The average age, body weight, milk yield, parity, grazing hours, concentrates and roughages allowance and supplementation of salt and mineral mixture are given in table 2. The average age of the animals was 5.99 years showing that the majority of households prefer younger cows. The average body weight was reported to be 242.68 kg again depicting preference of smaller and younger cows among the livestock farmers. Among surveyed dairy cattle, 78.64% animals were in milking stage and the rest (21.36%) of animals were in drying stage including the pregnant heifers. Out of all 4 blocks of the district, highest number of animals

in milking stage were in block Sumbal (84.62%) and dry in block Gurez (28.57%). The majority being in milking status reflects that drying up is followed for least period (15-20 days) or the other reason may be the erratic practice of milking the cattle even way beyond lactation period (Ishfaq *et al*., 2017) [9]. In terms of the milk yield, a substantial variation was observed between different blocks of the district. Average milk yield was 5.92 liter with the highest average yield (7.75 litre) in Hajin block and lowest (4.54) in Gurez block, which may be due to rearing of Holstein crossbred cattle and comparatively better feeding management in Hajin block. Ganai *et al*., 2004[7] reported average milk production of 7.73 kg in various districts of Kashmir valley. The average milk yield so recorded in this study was higher than state average production of 4.15 litre. The average parity observed was 2.34 indicating that most of the animals were in second or third parity and thus at better production age.

Table 2: Production and feeding parameters of cattle of district Bandipora

Parameters		Bandipora	Gurez	Hajin	Sumbal	District
Approximate Age of Animals(years)		5.75 ±0.42	5.74 ±0.35	6.53 ±0.32	5.96 ±0.25	5.99 ±0.33
Average Body Weight of Animals (kg)		240.64 ±12.54	211.52 ±8.53	274.80 ±7.65	243.78 ±8.12	242.68 ±9.21
Production status	Milking	77.91	71.43	80.60	84.62	78.64
	Dry	22.09	28.57	19.40	15.38	21.36
Average Milk Yield (kg)		5.64 ±0.65	4.54 ±0.52	7.75 ±0.61	5.75 ±0.47	5.92 ±0.56
Parity		2.27 ±0.27	2.18 ±0.29	2.51 ±0.17	2.42 ±0.25	2.34 ±0.24
Average Concentrate offered (DM in kg/day)		1.69 ±0.31	1.05 ±0.29	2.11 ±0.33	1.83 ±0.32	1.67 ±0.31
Average Roughage offered (DM in kg/day)		3.93 ±0.51	4.12 ±0.87	5.32 ±0.49	4.73 ±0.53	5.02 ±0.60
Average Grazing Hours /day		0.21 ±0.31	6.34 ±0.54	2.64 ±0.41	1.36 ±0.64	2.64 ±0.47
Supplementation (Min. & Vitamins)	Followed	5.67	2.00	9.65	6.32	5.90
	Not followed	94.33	98.00	90.35	93.68	94.09

The average concentrate and roughages allowance on dry matter basis was about 1.67 kg and 5.02 kg per animal, respectively. The concentrates provided to animals mostly included wheat bran, rice bran, mustard oil cake, linseed cake and commercial pellet feed, whereas the roughages mostly included paddy straw, oat straw, maize straw, wild hay locally known as lowe grass (harvested from orchards, forests, paddy bunds, lawn grass etc). Paddy straw, maize straw & wild hay was common roughage source available in abundance and fed mostly. Ishfaq *et al*. (2017) [9] reported same trend in feeding of cattle in district Budgam of Jammu and Kashmir. Ganai *et al*. (2006) [6] also reported paddy straw as main source of roughage in ration of animals in Kashmir. 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) [11]. A small fraction (5.90%) of the farmers were using supplementation in the form of minerals/salt for the animals. The same may be because of poor knowledge of farmers as reported by Ganai *et al*., 2008[5]. Hussain *et al*. (2011) [8] also reported similar results in district Kupwara of Jammu and Kashmir State. Ishfaq *et al*. 2017[9] reported that the farmers were satisfied on low production sufficient to meet their daily demands, indicating

that most of the farmers are unaware about the production potential of their animals and profitability of rearing dairy animals on scientific lines.

Different reproductive problems (Table 3) reported in the district were Abortion (2.08%), Dystocia (2.12%), Repeat breeding (12.51%), Retained fetal membrane (5.60%), Mastitis (6.29%), Still birth (0.78%), Uterine prolapsed (1.45%), Anestrous (3.66%) and Mixed problems (3.85%). Highest prevalent reproductive problem was repeat breeding with 12.51% in the district showing highest prevalence in block Gurez (18.75%) followed by Bandipora (13.93%), Sumbal (10%) and Hajin (7.37%). Still birth was reported only in Gurez with prevalence of 13.20% only. The second most reproductive problem reported in this study was mastitis, with district average of 6.29%, higest in Hajin block (9.47%) followed by Bandipora (8.19%) and Sumbal (7.50%). No such problem was reported in Block Gurez which may possibly due to large number of crossbred cattle in Hajin, Bandipora and Sumbal. Ishfaq *et al*. (2017)[9] reported more or less in the similar prevalence of reproductive health problems in dairy cattle of district Budgam of Kashmir valley. However Ganai *et al*. (2008) [5] reported 42.20% reproductive problems of dairy cattle in Kashmir valley

Table 3: Prevalence of reproductive problems in district Bandipora

Reproductive Problems	Bandipora	Gurez	Hajin	Sumbal	District
Abortion	1.64	3.12	1.05	2.50	2.08
Dystocia	3.27	3.12	2.10	0.00	2.12
Repeat breeding	13.93	18.75	7.37	10.00	12.51
Retained fetal membrane	4.91	9.37	3.15	5.00	5.60
Mastitis	8.19	0.00	9.47	7.50	6.29
Still birth	0.00	3.12	0.00	0.00	0.78
Uterine prolapsed	1.64	3.12	1.05	0.00	1.45
Anestrous	3.27	6.25	2.10	3.12	3.66
Mixed problems	3.97	4.75	3.21	3.45	3.85

Conclusion

Agriculture is the main source of income of about half of the livestock rearing people in district Bandipora which prefer intensive management of rearing. Low production and reproductive problems in the dairy cattle of the district are due to lack of knowledge about hygiene, balanced nutrition, proper management and satisfaction of farmers on low production (self-sufficiency only). Therefore, there is dire need of awareness among farmers about the balanced feeding and the proper rearing practices for enhanced production.

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