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# Socio-economic Status of Dairy Farmers in the Srinagar District of Jammu and Kashmir

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## ABSTRACT

**Background:** The dairy sector is not only a source of sustainable livelihood but is also an appropriate means of socio-economic development. The present study was conducted with the aim of studying the socio-economic status of dairy farmers in the Srinagar district of Jammu and Kashmir.

**Methods:** Information was sought from the selected respondents (616 farmers) on basis of the interview schedule using a pre-tested questionnaire regarding their family type, size and composition, literacy level, livelihood status, occupation, housing and land holding status and livestock inventory. The study period encompassed 2013 to 2017.

**Result:** It was observed that 75.32% dairy farmers lived in nuclear families whereas the remaining 24.68% had joint families. Based on size, 22.89, 56.49 and 20.62% farmers had small, medium and large families respectively. Average nuclear and joint family was observed to have 5.07±0.07 and 12.40±0.40 members respectively. On an average, family comprised of 2.18±0.05 adult males, 2.32±0.05 adult females, 1.16±0.05 ± male children and 0.95±0.06 female children. The overall literacy rate of the family was 66.20±1.04%. Dairy farming was the main occupation of 30.19% of the surveyed farmers while it was subsidiary for the remaining. Out of the total farmers surveyed, 62.66% had land while 37.34% farmers were landless. Livestock other than cattle kept by these dairy farmers included sheep, goat, poultry, horses, rabbits and buffaloes. The shift in literacy level from low level of family heads to medium level of overall family members and 100% schooling of children indicates improvement in social status of dairy farmers through various generations.

**Key words:** Cattle, Literacy, Livelihood, Socio-economics.

## INTRODUCTION

Indian dairy sector is characterized by large numbers of low producing animals which are predominantly being reared on crop residues. About 82% of dairy animals are owned by small, marginal and landless farmers contributing more than 70% of the milk production in the country (Mahajan *et al*., 2015). The livestock sector is not only a source of sustainable livelihood but is also an appropriate means of socio-economic growth. About 5.5% of total working population of India is involved in animal husbandry sector (Sharma and Tiwari, 2011). Dairy production is considered as an instrument for social and economic change, to improve income and quality of life of dairy farmers (Nagrale *et al.,* 2015).

Animal Husbandry is an important part of the agriculture sector and rural economy in the UT of Jammu and Kashmir (J&K) as well. Agriculture plays a very prominent role in the development of the economy of J&K. According to the JandK Economic Survey, about 70% of the population in the State gets livelihood directly or indirectly from the agriculture and allied sectors (Anonymous, 2015). The State has also witnessed an impressive growth in the livestock sector, particularly in dairying, contributing about 1.24% to the total milk production of the country at present (Anonymous, 2021). Dairy development is the major sector which is still unorganized to a large extent. Amongst different livestock enterprises, dairying is one of the choice options among the farmers in the Srinagar district of J&K. Although there are certain constraints (Hamadani *et al.,* 2019) and challenges (Ponnusamy *et al.,* 2019) in dairying but the same is reported to be profitable (Hamadani *et al.* 2020a) which may be perhaps due to rearing of high producing crossbreds (Hamadani *et al.,* 2020b; Hamadani *et al.,* 2021). The current study aimed to investigate the socio-economic status of dairy farmers in Srinagar district.

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## MATERIALS AND METHODS

### Study area

The study was conducted in Srinagar city from 2013-2017. Srinagar is the summer capital of Jammu and Kashmir, having a human population of 12.37 lakhs (Anonymous, 2015) and a cattle population of 25.39 lakh (Anonymous, 2019) contributing 1558.93 thousand tonnes of milk (Anonymous, 2020).

### Sampling

The study area, with a total of 137 villages, was divided into three zones *viz*. Zone 1, Zone 2 and Zone 3 with Zone 1 representing Srinagar East, Zone 2 Srinagar West and Zone 3 ACR Srinagar. Twenty percent of the villages from each zone were selected and from each selected village a minimum of twenty livestock owners were included in the survey depending upon the availability using a multi-stage stratified cluster sampling technique. A total of 616 farmers were included in the study, with 203 from Zone 1, 208 from Zone 2 and 205 from Zone 3 respectively. Information was sought from the selected respondents on basis of the interview schedule using a pre-tested questionnaire regarding their family type, size and composition, literacy level, livelihood status, occupation, housing and land holding status and livestock inventory.

### Statistical analysis

The data was tabulated, classified and analyzed by drawing averages and percentages wherever required. The means between the groups were compared by using ANNOVA and the percentage data was subjected to the test of proportions for analyzing the statistical significance between the groups (Snedecor and Cochran, 1980).

## RESULTS AND DISCUSSION

### Family type

Family structure, size, head's gender and head's literacy across the three zones is depicted in Table 1. Most of the dairy farmers in the present study lived in nuclear families. Similar trend has been reported by Saha *et al.* (2010), Kumar *et al.* (2012) and Vekariya *et al.* (2016), but Bhanotra *et al.* (2016) and Kannojiya and Kumar, (2017) reported a lower proportion of farmers living in nuclear families compared to joint families in their respective studies. Differences in the family structure observed in different studies may be attributed to the fact that social structures keep changing with time and location.

In terms of family size, most of the farmers in the present study overall had medium sized family, followed by farmers who had small sized family and then by farmers having large family. Predominance of medium sized families among dairy farming communities have also been stated by Bhanotra *et al.* (2016) and Kannojiya and Kumar, (2017).

Majority of the families in all three zones were male headed in the present study. Similar findings have been reported by Staal *et al.* (2006) and Njarui*et al.* (2012) in their respective studies in different areas.

Overall in Srinagar district, only 39.12% family heads were observed to be literate in the present study. Lower literacy percentage of family heads of dairy farming families has also been reported by Wani *et al.* (2004) in various zones of Jammu and Kashmir but higher level have been reported by Gupta *et al.* (2014) in Eastern Region of India.

### Family size and composition

Average overall family size of dairy farmers in Srinagar district was found to be 6.9±0.17 members in the present study (Table 1). Almost similar family size of dairy farmers has been reported by Wani *et al.* (2004) and Gupta *et al.* (2014).

The family of dairy farmers in Srinagar overall, comprised of 2.18±0.05, 2.32±0.05, 1.16±0.05 and 0.95±0.06 adult males, adult females, male children and female children respectively in the present study (Table 1). Wani *et al.* (2004) reported lesser number of adult males and adult females, but higher number of male children and female children in the family of dairy farmers across various agro-climatic zones of Jammu and Kashmir.

### Literacy rate

Overall literacy rate of the dairy farmer's family in Srinagar district was 66.20±1.04%, being higher in male members than the female members (Table 1). The family education status of most dairy farmers have been reported to be medium to high level by Saha *et al.* (2010) in their respective study.

All the farmers (100%) who had children in all the three zones sent their children to schools for education in the present study (Table 1) indicating increased awareness among the dairy farming communities regarding the power of education.

### Livelihood status

In Srinagar only 34.11±0.62% overall members in a family were earning, with 40.32±1.17%, 29.16±0.84% and 34.09±1.17% in zone 1, zone 2 and zone 3 respectively in the present study (Table 1). A higher proportion of earning members in families of dairy farmers was reported by Wani *et al.* (2004).

It was found that in Srinagar district overall, 60.78±1.13% members of a dairy farmer's family were involved in dairying in the present study (Table 1). Active involvement of women in dairy farming has also been reported by Ponnusamy *et al.* (2020).

In Srinagar district overall, dairy farming was the primary occupation of 30.19% farmers, followed by 21.27%, 16.72%, 15.42% 8.28% and 8.12% farmers who were labourers, businessmen, artisans, government/private sector employs and agricultural farmer by profession respectively but reared cows too in the present study (Table 1). Various types of professions of farmers rearing cows similar to the present study have been reported by Wani *et al.* (2004), Farooq

**Table 1:** Family status of the dairy farmers of srinagar.

| Parameter | Percentage of farmers | | | |
|---|---|---|---|---|
| | Zone 1 | Zone 2 | Zone 3 | Overall |
| **1. Family type of dairy farmers** | | | | |
| Structure | | | | |
| i. Nuclear | 57.14$^{a}$ | 93.27$^{c}$ | 75.12$^{b}$ | 75.32 |
| ii. Joint | 42.86$^{c}$ | 6.73$^{a}$ | 24.88$^{b}$ | 24.68 |
| **Size** | | | | |
| i. Small (1-4 members) | 23.15$^{b}$ | 12.5$^{a}$ | 33.17$^{c}$ | 22.89 |
| ii. Medium (5-9 members) | 46.31$^{a}$ | 81.25$^{b}$ | 41.46$^{a}$ | 56.49 |
| iii. Large (10 or more) | 30.54$^{b}$ | 6.25$^{a}$ | 25.37$^{b}$ | 20.62 |
| **Head's gender** | | | | |
| i. Male | 92.12 | 86.54 | 91.71 | 90 |
| ii. Female | 7.88 | 13.46 | 8.29 | 10 |
| Head's literacy | | | | |
| i. Literate | 30.54$^{a}$ | 46.63$^{b}$ | 40$^{b}$ | 39.12 |
| ii. Illiterate | 69.46$^{b}$ | 53.37$^{a}$ | 60$^{a}$ | 60.88 |
| **2. Family size and composition of dairy farmers** | | | | |
| Average family size | | | | |
| i. Nuclear family | 5.29±0.21 | 5.29±0.05 | 4.56±0.11 | 5.07±0.07 |
| ii. Joint family | 13.17±0.63 | 8±0.27 | 12.33±0.31 | 12.4±0.40 |
| iii. Overall | 8.92±0.42$^{b}$ | 5.47±0.07$^{a}$ | 6.5±0.27$^{ab}$ | 6.9±0.17 |
| **Family composition** | | | | |
| i. Adult males | 2.77±0.11$^{b}$ | 2.07±0.06$^{ab}$ | 1.6±0.06$^{a}$ | 2.18±0.05 |
| ii. Adult females | 2.69±0.14$^{b}$ | 2.27±0.05$^{a}$ | 1.9±0.06$^{a}$ | 2.32±0.05 |
| iii. Male children | 1.69±0.12 | 0.73±0.05 | 1.1±0.08 | 1.16±0.05 |
| iv. Female children | 1.77±0.13 | 0.47±0.04 | 0.6±0.09 | 0.95±0.06 |
| **3. Literacy rate (%) of family members** | | | | |
| i. Male members | 66.57±4.67$^{a}$ | 85.55±5.93$^{b}$ | 69.07±4.82$^{a}$ | 75.11±3.03 |
| ii. Female members | 56.98±1.96 | 57.78±2.13 | 46.16±2.25 | 54.61±1.20 |
| iii. Overall | 61.59±1.77$^{a}$ | 72.83±1.89$^{b}$ | 61.30±1.93$^{a}$ | 66.20±1.04 |
| **4. Livelihood status of dairy farmers** | | | | |
| **Earning members** | | | | |
| i. Male members | 74.97±1.82$^{c}$ | 54.44±1.48$^{a}$ | 62.41±2.27$^{b}$ | 63.28±1.08 |
| ii. Female members | 2.08±0.51$^{a}$ | 4.44±0.81$^{a}$ | 8.33±1.23$^{b}$ | 4.63±0.49 |
| iii. Overall | 40.32±1.17$^{c}$ | 29.16±0.84$^{a}$ | 34.09±1.17$^{b}$ | 34.11±0.62 |
| **Members involved with dairying** | | | | |
| i. Adult males | 57.02±2.14$^{a}$ | 57.78±2.26$^{a}$ | 74.26±1.91$^{b}$ | 61.65±1.24 |
| ii. Adult females | 67.12±2.59$^{b}$ | 53.33±2.40$^{a}$ | 75.79±2.09$^{c}$ | 63.54±1.40 |
| iii. Children | 12.96±2.32$^{a}$ | 18.52±2.61$^{a}$ | 56.25±3.48$^{b}$ | 25.87±1.68 |
| iv. Overall | 57.95±2.05$^{a}$ | 54.17±1.94$^{a}$ | 75.56±1.68$^{b}$ | 60.78±1.13 |
| **Primary occupation** | | | | |
| i. Dairy farming | 14.78$^{a}$ | 55.29$^{b}$ | 20.00$^{a}$ | 30.19 |
| ii. Labour | 35.96$^{c}$ | 8.17$^{a}$ | 20.00$^{b}$ | 21.27 |
| iii. Business | 17.24 | 16.35 | 16.35 | 16.72 |
| iv. Artisanship | 14.78$^{b}$ | 1.92$^{a}$ | 29.76$^{c}$ | 15.42 |
| v. Govt./ Pvt. job | 2.46$^{a}$ | 12.02$^{b}$ | 10.24$^{b}$ | 8.28 |
| vi. Agricultural farming | 14.78$^{b}$ | 6.25$^{a}$ | 3.41$^{a}$ | 8.12 |

Values/Percentages bearing different superscripts in a row differ significantly (P<0.05).

(2016), Bhanotra *et al.* (2016) and Kannojiya and Kumar (2017).

### Housing and land holding status

In the present study, overall Srinagar district had 78.25% dairy farmers who lived in pucca houses with the remaining 21.75% living in semi-kutcha houses (Table 2). Kannojiya and Kumar (2017) reported that only 0.83% farmers lived in pucca houses in a study carried out in Uttar Pradesh, while 55.84% farmers in Jammu and Kashmir have been reported to live in permanent houses by Kumar *et al.* (2012).

It was observed that in Srinagar overall 62.66% farmers had land holdings, whereas the remaining 37.34% farmers were landless (Table 2). Kumar *et al.* (2012) and Bhanotra *et al.* (2016) reported that only a small proportion of dairy farmers were landless with the majority owning land in Kathua district of Jammu and Kashmir.

### Livestock

Livestock other than cattle kept by the farmers included sheep, goat, poultry, horses, rabbits and buffaloes in the present study (Table 2), as also been reported by Saha *et al.* (2010), Kumar *et al.* (2012) and Gupta *et al.* (2014) in their respective studies.

The cattle inventory present with the dairy farmers at the time of survey is given in Table 3. The average number of adult bulls and dry cows kept by the dairy farmers overall in the present study was found to be less than the reports of Wanjala and Njehia, (2014) in their respective study. The average number of males below 1 year and females below 1 year kept by the dairy farmers overall in the present study was found to be less than the reports of Wanjala and Njehia, (2014) in their study. The average number of young males (1-2 year) was found to be less and the average number of young females (1-2 year) was found to be more in the present study than the reports of Farooq, (2016) in a study carried out in Pulwama district of Jammu and Kashmir. The average number of lactating cows kept by the dairy farmers overall in the present study was found to be more than the reports of Wani *et al.* (2004) and Wanjala and Njehia, (2014) in their respective studies.

Average Standard Adult Units (S.A.U.) kept by the farmers overall was calculated to be 3.79±0.15 in the present study (Table 3), which is more than the reports of Wani *et al.* (2004) in a similar study carried out in the Pulwama district of Jammu and Kashmir.

**Table 2:** Housing, land and livestock holding status of dairy farmers.

| Parameter | Percentage of farmers | | | |
|---|---|---|---|---|
| | Zone 1 | Zone 2 | Zone 3 | Overall |
| **1. Housing and land holding status of dairy farmers** | | | | |
| Type of farmer's house | | | | |
| i. Pucca | 74.88$^{b}$ | 92.79$^{a}$ | 66.83$^{b}$ | 78.25 |
| ii. Semi kutcha | 25.12$^{a}$ | 7.21$^{b}$ | 33.17$^{a}$ | 21.75 |
| **Number of storeys in farmer's house** | | | | |
| i. Single | 37.44$^{b}$ | 21.63$^{a}$ | 36.59$^{b}$ | 31.82 |
| ii. Double | 50.25$^{b}$ | 50$^{b}$ | 36.10$^{a}$ | 45.45 |
| iii. More than 2 | 12.32$^{a}$ | 28.37$^{b}$ | 27.32$^{b}$ | 22.73 |
| **Land holding status** | | | | |
| i. Landless | 31.03$^{a}$ | 53.37$^{b}$ | 27.32$^{a}$ | 37.34 |
| ii. Land holders | 68.97$^{b}$ | 46.63$^{a}$ | 72.68$^{b}$ | 62.66 |
| Purpose of land | | | | |
| i. Agriculture | 63.57$^{b}$ | 27.84$^{a}$ | 69.80$^{b}$ | 56.99 |
| ii. Idle | 36.43$^{a}$ | 72.16$^{b}$ | 30.20$^{a}$ | 43.01 |
| **2. Livestock other than cattle kept by the dairy farmers** | | | | |
| Sheep/goat* | 11.82$^{a}$ (2.0±0.21) | 39.9$^{b}$ (4.76±0.86) | 17.56$^{a}$ (3.89±0.53) | 23.21 (4.08±0.53) |
| Poultry* | 11.82$^{b}$ (3.08±0.12$^{b}$) | 11.54$^{b}$ (3.5±0.10$^{b}$) | 1.95$^{a}$ (1.54±0.29$^{a}$) | 8.44 (3.15±0.10) |
| Horses* | 1.97 (1.25±0.25) | 0.48 (3.50±2.5) | 0.97 (4.0±0.01) | 1.14 (2.29±1.98) |
| Rabbits* | 0.0 (0.0±0.0) | 1.44 (2.67±0.33) | 0.0 (0.0±0.0) | 0.49 (2.67±0.33) |
| Buffaloes* | 0.98 (3.5±0.5) | 0.0 (0.0±0.0) | 0.0 (0.0±0.0) | 0.32 (3.50±0.5) |
| **3. Size of adult cow unit owned by farmers** | | | | |
| 1 cow unit | 41.38 | 46.15 | 48.78 | 45.45 |
| 2-4 cow unit | 50.74$^{b}$ | 36.06$^{a}$ | 40.98$^{a}$ | 42.53 |
| 5-9 cow unit | 4.92$^{a}$ | 14.42$^{b}$ | 10.24$^{b}$ | 9.91 |
| 10 cow unit | 2.96$^{b}$ | 3.37$^{b}$ | 0.00$^{a}$ | 2.11 |

Percentages bearing different superscripts in a row differ significantly (P<0.05). *Value in parenthesis gives average number of livestock species kept by the respective proportion of farmers.

**Table 3:** Cattle inventory of dairy farmers.

| Parameter | Zone 1 | Zone 2 | Zone 3 | Overall |
|---|---|---|---|---|
| Adult bulls | 0.05±0.02 | 0.04±0.02 | 0.01±0.01 | 0.03±0.01 |
| Males below 1 year | 0.64±0.04$^{a}$ | 0.94±0.10$^{b}$ | 0.89±0.05$^{b}$ | 0.83±0.04 |
| Females below 1 year | 0.99±0.10$^{b}$ | 0.94±0.10$^{b}$ | 0.74±0.06$^{a}$ | 0.89±0.05 |
| Young males (1-2 year) | 0.03±0.01 | 0.01±0.01 | 0.01±0.01 | 0.02±0.01 |
| Young females (1-2 year) | 0.67±0.19$^{b}$ | 0.15±0.07$^{a}$ | 0.59±0.09$^{b}$ | 0.47±0.07 |
| Pregnant heifers | 0.09±0.02$^{a}$ | 0.15±0.03$^{a}$ | 0.85±0.07$^{b}$ | 0.37±0.03 |
| Non pregnant heifers | 0.13±0.25$^{a}$ | 0.43±0.04$^{c}$ | 0.25±0.04$^{b}$ | 0.27±0.02 |
| Lactating cows | 2.18±0.14 | 2.54±0.17 | 2.14±0.10 | 2.29±0.08 |
| Dry cows | 0.02±0.01$^{a}$ | 0.26±0.08$^{b}$ | 0.05±0.02$^{a}$ | 0.12±0.03 |
| Cows in 1$^{st}$ lactation | 0.28±0.04$^{a}$ | 0.53±0.05$^{b}$ | 0.61±0.06$^{b}$ | 0.48±0.03 |
| Cows in 2$^{nd}$ lactation | 0.58±0.06$^{a}$ | 0.63±0.06$^{a}$ | 0.95±0.05$^{b}$ | 0.72±0.03 |
| Cows in 3$^{rd}$ lactation | 0.71±0.10$^{b}$ | 0.84±0.06$^{b}$ | 0.35±0.06$^{a}$ | 0.63±0.04 |
| Cows in 4$^{th}$ lactation | 0.37±0.04$^{b}$ | 0.70±0.09$^{c}$ | 0.15±0.03$^{a}$ | 0.40±0.04 |
| Cows in 5$^{th}$ lactation | 0.14±0.03 | 0.11±0.02 | 0.10±0.02 | 0.12±0.01 |
| Cows in 6$^{th}$ or more lactation | 0.06±0.17$^{a}$ | 0.03±0.01$^{a}$ | 0.09±0.03$^{b}$ | 0.09±0.01 |
| Standard adult units | 3.39±0.25 | 3.98±0.29 | 4.00±0.20 | 3.79±0.15 |

Means bearing different superscripts in a row differ significantly (P<0.05).

The number of males below 1 year and females below 1 year kept by the farmers was almost in equal proportion, but the number of young males (1-2 year) compared to young females (1-2 year) was less in the present study indicating that the farmers sold male animals after 1 year of age but retained female animals for rearing. The reasons for owning of negligible number adult bulls by the farmers in the present study may be attributed to the increased adoption of artificial insemination of cows and insignificant use of bulls for draught purpose in the Srinagar city.

### Size of adult cow unit

Overall, 45.45% farmers in the Srinagar district owned only one cow (Table 2). However, 42.53%, 9.91% and 2.11% farmers were classified in groups having 2-4 cows, 5-9 cows and more than 10 cows respectively in the present study. Unlike the present study, majority of the farmers have been reported to own 1 cow only in a study carried by Farooq (2016) in Pulwama district of Jammu and Kashmir.

## CONCLUSION

The shift in literacy level from low level of family heads to medium level of overall family members and 100% schooling of children indicates improvement in social status of dairy farmers through various generations. However further improvement in socio-economic status can be done through scientific interventions, trainings and government support.

**Conflict of interest:** None.

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