

*Original Research***Goat Production in Bharatpur, Rajasthan- Status and Strategy for Development****Vijay Kumar<sup>1\*</sup>, P. K. Rout<sup>2</sup>, Ashok Kumar<sup>2</sup>, R. Pourouchottamane<sup>2</sup>, Braj Mohan<sup>2</sup> and A. K. Dixit<sup>3</sup>**

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**Abstract**

Present study was conducted in 15 villages of Bharatpur district of Rajasthan, India, purposively due to Jamunapari bucks were provided to farmers for breed improvement. Data were collected randomly from 41 goat farmers in semi-structured interview schedule. Most of respondents (90.2%) were women and majority of them were illiterate (61%), belong to OBC category (68.3%) and having marginal land holding (56.1%). Small ruminant rearing was the major livestock activity. The male to female ratio was observed to be 1.5:1.0 to 0.3:1.0 in different breeds. Overall mortality in goats in villages was found to be 22.8 per cent. The gap between awareness and adoption of all scientific practices was very low (0 to 5.7%). There is a need to create awareness by using mass media, explore the possibility of using alternate materials in housing and feeding to reduce the input cost, more focus on support service like veterinary service, credit service, transportation, marketing and extension services.

**Key words:** Goat Production, Rajasthan, Strategy

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**Introduction**

Animal husbandry is a major economic activity of the rural peoples, especially in the arid and semi-arid regions of the Rajasthan. Development of livestock sector has a significant beneficial impact in generating employment and reducing poverty in rural areas. This sector is considered as engine of social & economic growth, especially in the rural area. More than 80% rural families keep livestock in their households. Contribution of animal husbandry sector to the GDP of the State has been estimated to be around 9.16 %. About 35% of the income to small and marginal farmers comes from dairy and animal husbandry (Government of Rajasthan, 2010). The small ruminants contribute 15 to 27% of family income

of smallholders and provide gainful employment of 180 to 330 man-days per annum depending on the size of the flock (Misra *et al.*, 2000).

Rajasthan share in country goat population is highest (16.03%). Among the total livestock in the state, goat contributes highest with 37.53% followed by cattle 23.08%, buffalo 22.48% and sheep 15.73%. The total number of goat in the state as per census 2012 is 21.66 million numbers. There is a 0.76% increase in number of goat population during the inter censuses period (2007-2012). In Bharatpur district, goat contributes 13.58% (goat population- 172391) and 78.65% is male goat & rest is female (Livestock Census, 2012). Average goat meat yield in India is only 11.01 kg/goat against about 13.14 kg/goat in Rajasthan (BAHFS, 2015). Rajasthan has multiple policies in place to facilitate animal husbandry in the state like Bhamasah Pasu Beema Yojan, Livestock Development Policy 2010, Pashudhan Niti, Free medicine programme etc. The state has already adopted multiple best practices in animal husbandry and now plans to take this further to attain world class standards (Government of Rajasthan, 2016). Present study is focusing on issues related to goat development in Bharatpur district of Rajasthan.

## Materials and Methods

Bharatpur district was selected purposively for the study because of many elite germplas (Jamunapari buck) was provided to many farmers and this district is located near to the Institute. Data were collected randomly from 41 goat farmers (37 male and 4 female) of 15 villages of Bharatpur district of Rajasthan who received breeding bucks from ICAR-CIRG in semi-structured interview schedule during January-March, 2016. Data were analysed with suitable statistical methods like per cent, ratio and mean.

## Results and Discussion

### Socio-Economic Profile

The socio economic attributes of the respondents who were included in the present study is given in Table 1. In the study area, Illiteracy was prevalent among goat farming community and in the present study, most of the farmers were found to be illiterate (61%) followed by those having secondary (19.5%) and primary (17.1%) level of schooling. Goat is considered as 'Poor man's cow' and it was observed that in present study that goat rearing is carried out mainly by the farmers having marginal land holdings (56.1%) followed by landless farmers (36.6%). The respondents involved in goat farming belongs to other backward caste (68.3%) followed by scheduled caste (24.4%) and only 7.3 % of them belonged to general community. Economically, majority of the farmers were found in above poverty line (61%) while 36.6% belonged to below poverty line (BPL) category. Goat farming was found to be primary occupation for 51.2% of farmers while 46.3 % respondents reported goat rearing as their secondary occupation complimenting their income from agricultural activities.

**Table 1:** Distribution of respondents according to their socio-economic variables

| Socio-Economic Attributes |                          | No. of Respondents | Per cent (%) |
|---------------------------|--------------------------|--------------------|--------------|
| Sex                       | Male                     | 4                  | 9.8          |
|                           | Female                   | 37                 | 90.2         |
| Age                       | Avg. 39.25               | Range (18 to 62)   |              |
| Education                 | Illiterate               | 25                 | 61           |
|                           | Primary                  | 7                  | 17.1         |
|                           | Secondary                | 8                  | 19.5         |
|                           | Higher Secondary & above | 1                  | 2.4          |
| Social group              | General                  | 3                  | 7.3          |
|                           | OBC                      | 28                 | 68.3         |
|                           | SC                       | 10                 | 24.4         |
| Economic group            | APL                      | 25                 | 61           |
|                           | BPL                      | 15                 | 36.6         |
|                           | Antyodaya                | 1                  | 2.4          |
| Primary Occupation        | Agriculture              | 19                 | 46.3         |
|                           | Non Agricultural labour  | 1                  | 2.4          |
|                           | Goat farming             | 21                 | 51.2         |
| Secondary Occupation      | Agriculture              | 5                  | 12.2         |
|                           | Agricultural labour      | 4                  | 9.8          |
|                           | Non-Agricultural labour  | 13                 | 31.7         |
|                           | Goat farming             | 19                 | 46.3         |
| Land Holding              | Landless                 | 15                 | 36.6         |
|                           | Marginal                 | 23                 | 56.1         |
|                           | Small                    | 3                  | 7.3          |

### Livestock Composition

In the study area, small ruminant rearing was the major livestock activity along with keeping one or two cattle and buffaloes in their farmstead. The total of goats and sheep reared by the respondents are 608 and 433 respectively. In addition to small ruminants, 58.5 per cent and 36.5 per cent households reared one or two buffaloes (37 nos.) and desi cattle (18 nos.) respectively while sheep (432 nos.) is reared in 26.8 per cent households. Study on herd composition (Table 2) of goats revealed that local non-descript goats constituted major portion of the population (85.6 %) followed by Jamunapari (14.1%).

**Table 2:** Composition of different categories of goat in the study area (except breeding buck)

| Breed                | No. of households | No. of goats | Male under 1 year | Male above 1 year | Total male | Female under 1 year | Female above 1 year | Total Female | Male: Female |
|----------------------|-------------------|--------------|-------------------|-------------------|------------|---------------------|---------------------|--------------|--------------|
| Jamunapari           | 23                | 86           | 36                | 16                | 52         | 33                  | 1                   | 34           | 1.5          |
| Barbari              | 1                 | 2            | 1                 | 0                 | 1          | 0                   | 1                   | 1            | 1            |
| Local (Non-Descript) | 37                | 520          | 92                | 38                | 130        | 113                 | 277                 | 390          | 0.3          |

Jamunapari was introduced in the study area by CIRG, Makhdoom and was gaining popularity among respondents as their breed of choice. The respondents retained more of Jamunapari bucks to be used for

breeding purpose. The male to female ratio was observed to be 1.5:1.0 in Jamunapari flocks while it was only 0.3:1.0 in local non-descript goats. These Jamunapari bucks were used to upgrade local goats and conception rate was found to be 100 % (70 does crossed). 41 does (58.5%) produced single kid while twinning was noted in 29 does (41.5 %). There were 41 goat farmers who received buck (one to each farmer) from Institute (ICAR-CIRG) out of them, 19 bucks were sold due to higher price realisation, 4 were dead due to different reasons, 3 bucks not mating properly and 14 (34%) performing well.

### Management Practices

Animals were kept in Kachacha houses in all households. In 36.5 per cent households animals were reared only on browsing whereas rest of households (63.5%) used to provide supplement (available grains about 100 to 400 gm/goats/day) to their goats. In 90.2 per cent households browsing practices were done by family members and rest of the households used to heir traditional or farmer's having big flock size to graze their animals on the Rs. 200/goat/month. Shortage of feed and water were perceived by all respondents in winter and summer, respectively. Winter was perceived (by 65.8% respondents) as major season in which maximum disease occurred followed by monsoon (21.9%) and summer (12.3%) in the study area. Kumar Vijay *et al.* (2015) in his study in similar condition of Uttar Pradesh found that majority of goat farmers were partial adaptors of all the management practices. Age, flock size and family size contribute negatively whereas farmer's education, family education status and land holding contribute positively to adoption index of many management practices.

### Mortality Pattern

Mortality is the prime indicator of goat farm. Overall mortality in goats in village was found to be 22.8 per cent as depicted in Table 3. Among all age and sex group, adult doe had highest mortality (56.1%) during study period due to enterotoxaemia, pneumonia and other causes. Kid mortality was recorded 34.4 per cent and mortality in adult male was found minimum (18.4%). Major cause of mortality was due to diseases which were related to alimentary system. Mortality patterns in herd depict a useful indicator for assessing the status of herd health and management practices and their efficacy. Diseases resulted in mortality ranges from 5 to 25% in adults and 10 to 40% in kids. In addition, morbidity losses resulted into low productivity of the animals (Vihaan, 2009). A twenty five years (1988–2012) retrospective study on mortality of goats reared in semi-intensive and organised farm; study revealed that the diseases associated with alimentary system were the major cause of mortality in goats with kids and adult being almost equally affected (Pawaiya *et al.*, 2017).

**Table 3:** Mortality pattern of goats in the field

| Mortality Pattern |                        |                      |
|-------------------|------------------------|----------------------|
| Animal            | Number of Dead animals | Mortality (Per cent) |
| Adult male        | 29                     | 18.4                 |
| Adult doe         | 69                     | 56.1                 |
| Kid               | 86                     | 34.4                 |
| Total             | 180                    | 22.8                 |

### Awareness and Adoption of Scientific Technology

Awareness is the first step of adoption of any technology. In present study there was small gap (0 to 5.7%) between awareness and adoption of all scientific practices as depicted in Table 4. But, awareness was comparatively low in all practices and varies from 34.2 to 57%. Maximum awareness was found for breeding and reproduction practices and minimum was found for hygiene and health. Their consequences reflect in high level of mortality among all age groups. Farmers need awareness for different practices and technology for goat development.

**Table 4:** Awareness and adoption of scientific practices/ technology among goat farmers

| Practices                 | Awareness (%) | Adoption (%) |
|---------------------------|---------------|--------------|
| Breeding and Reproduction | 57            | 54           |
| Feeding and Management    | 48.7          | 43           |
| Hygiene and Health        | 34.2          | 33.3         |
| Marketing                 | 36.5          | 36.5         |

### Constraints

Constraints restrict the developmental process and it may of any type at any level. In this study constraints grouped under three heads. Marketing of goat was found major constraints (55.1%) followed by input supply to goat value chain (47.1 %) which consists breeding buck availability, feed and water availability, good housing etc. support services for goat production which includes veterinary service, credit service, transportation service and extension services were constraints perceived by 42.2 per cent respondents. Kumar Vijay *et al.* (2014) in his study in similar condition of Uttar Pradesh found availability of input was considered as one of the most important constraints. Poor veterinary infrastructure and services, availability of quality buck, poor extension activity were the most serious input constraint. High cost of veterinary service, shrinkage of grazing land and lack of credit facility were the most important economical constraints. Poor knowledge about improved technology, lower literacy rate and ignorance among farmers were most important socio-personal constraints.

### Strategy

To enhance the productivity of goat, improved health of animals, employment generation and socio-economic development of goat farmers in Bharatpur, a strategy based on available recourses and

identified constraints. As study suggests majority of goats reared by farmers are Non-Descript and they like Jamunapari breed so, Jamunapri buck should be given to farmers to upgrade indigenous germplasm. There is very minutes gap between awareness and adoption of scientific technology however, awareness rate is low. It shows that if farmers get aware with new technology they will adopt in goat rearing. Local and state level fairs should be arranged to create awareness and motivation of farmers towards technical and scientific development in the sector. Low awareness about various technologies might be attributed to the fact most of the farmers are illiterates and have no access to get information through print media like newspaper, folders, banners etc. similarly, giving lectures on scientific practices to them were also less effective. There is a need to create awareness through use of audio-visual aids, conducting exposure visit to organized goat farms (seeing is believing), method and result demonstration of improved practices (learning by doing) as well as arranging meeting/ interactions with progressive and successful goat farmers. Support system is crucial for livestock development. Research and Development sectors should explore the possibility of use of alternate materials in housing and feeding to reduce the input cost in goat value chain. Government should more focus to support service like veterinary service, credit service, transportation service and extension services. It will also helpful for mortality reduction and getting high income. Marketing channel should be strengthen by applying cluster farmers approach to remove intermediate from the market for realisation of good price of their produce.

### Conclusion

There is very minutes gap between awareness and adoption of scientific technology in the study area and awareness rate is low. It shows that if farmers get aware with new technology they will adopt in goat rearing. So, government agency and line department should use different extension methods to make farmers aware, motivated and adoption of scientific technologies.

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### Conflict of Interest

There is no any conflict of interest.

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