

# Kashmir Merino

## The pride of Kashmir

**Mubashir Ali Rather<sup>1</sup>, Safer Alam<sup>2</sup>, Nusrat Nabi Khan<sup>2</sup> and Ambreen Hamadani<sup>2</sup>**

Department of Sheep Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Jammu and Kashmir 180 009

*The Kashmir Merino sheep is a medium sized sheep breed (adult bodyweight 29-75 kg). This dual-purpose breed is being used both for meat and wool production and has a good influence on the socio-economic status of tribal, marginal, land less farmers and laborers of Kashmir Valley. The flock size varies from 5 to 90 sheep per farmer. The flock composition varies from 3-73 number of ewes, 1 to 5 number breeding rams and 2-22 young ones. This breed is being reared by the sheep farmers for meat as well as wool production and is known for fast growth, adaptability, and production of good quality wool with fibre diameter of 18-22.5  $\mu$ . The farmers have mostly adopted sheep rearing as a secondary source of income. Most of the Kashmir Merino farmers belong to the Chopan cast or the Muslim community. Natural random flock mating was practiced during autumn which is the main breeding season. The most prevalent diseases in the area were sheep pox, orf, foot root, gid, fascioliasis, cerebrospinal namatodiasis, mange, diarrhea and other ecto and endoparasitic disease.*

**Key words:** Farmers, Kashmir Valley, Kashmir Merino, Meat, Sheep wool

**T**HE livestock sector is one of the most dynamic fields of human activity on global level. At present, it is one of the fastest growing agricultural subsectors in developing countries, especially India. It employs a major section of the labour force and also provides a large share of draft power being used to cultivate crop land. India's livestock sector is one of the largest sectors in the world and in this country, besides other domestic animals, sheep breeding is an important enterprise in animal production yielding wool, meat and milk, etc.

The sheep population in India is estimated to be about 74.26 million thus ranking second in the world. There are 43 registered breeds of sheep distributed in various agro climatic zones of the country. It contributes greatly to the agrarian economy, especially in the livelihood of a large proportion of small and marginal farmers and landless

labourers providing nutritional security and insurance to the farmer at the time of crisis due to crop failure. Therefore, sheep are seen as, "finance elevators" by the countryside poor farmer and are raised for fleeces, mutton and even milk. Sheep husbandry is practiced throughout the majority of the inhabited world, and has been fundamental to many civilizations. Sheep has excellent adoption for utilization of wastelands as well as low and high pastures converting them into high quality proteins in the form of meat and wool. Besides, sheep are gregarious in nature and are less prone to extreme environmental conditions prevailing in the valley during winter.

### **Kashmir Merino in Kashmir**

In India, Jammu and Kashmir is ideally suited for rearing of sheep and goat owing to favourable agro-climatic and geo-physical conditions, rich alpine pastures and a host of

other natural endowments. Nature has bestowed this state with high mountains to low hills and vast meadows providing enormous scope and excellent atmosphere for sheep rearing. The pastoral areas of state are found both in sub-tropical zone of Jammu and temperate zone of Kashmir. Sheep and goat rearing is the core activity of rural masses in the state and plays a vital role in socio-economic upliftment of weaker sections of the society viz; Gujjars, Bakerwals, Chopans, Gaddies and Changpas. The Gujjars and Bakerwals have adopted the sheep and goat rearing as their primary occupation from times immemorial and prefer to migrate in search of pastures to feed their livestock.

Sheep rearing is not new to Jammu and Kashmir. It has been practiced from times immemorial. The statement is supported by recovery of tools made from bones of domestic sheep and goat during

excavation at Gufkral, Pulwama located 35.54°N and 75.60°E, 41 km from Srinagar (Anonymous, 1984). Therefore, domestication of sheep and goat in Kashmir was practiced even before second millennium B.C. Jammu and Kashmir ranks 6<sup>th</sup> with regard to sheep population in the country having 3.4 Million sheep. There are 6 native breeds of sheep

*viz.*: Gaddi, Gurez, Bhakarwal, Poonchi, Karnah, and Changthangi. The productivity of these breeds in terms of wool and mutton was low.

A crossbreeding programme was taken up as a breeding policy to improve the genetic potential of sheep for wool traits to meet the rising demand for good quality apparel wool. The worldwide success of crossbreeding was another reason for taking up the program. This led to the development of the Kashmir Merino Breed which breed is now found in every pocket of the Kashmir Valley and is well adapted to geophysical conditions of the region with a population of more than 11.15 lakhs. Dr. G. A. Bandy, a veterinarian by profession, was the brain behind development of this synthetic breed of sheep. In recognition of this achievement in taking sheep husbandry sector to new heights, he was conferred I.A.S. in 1974-75 and awarded gold medal in 1978. Above all, he was awarded the country's highest civil award *viz.*; Padamshri in honour of his contribution and dedication in the field of sheep development.

The breed is known for fast growth and production of 1-6.5 kg/year of good quality white fine wool with average fibre diameter of 18-22.5 $\mu$  and staple length of 4-6 cm.

#### Breeding tract of Kashmir Merino

Kashmir valley the breeding tract, located at a bio-geographically pivotal position, is a unique biotic province of the Northwestern Himalaya (Fig. 1). Lying between the coordinates of 32° 20' to 34° 50' North latitude and 73° 55' to 75° 35' East longitude, the region has a total area of about 15,948 km<sup>2</sup>, nearly 64% of which is mountainous. About 75% rural population is engaged with sheep and goat rearing. It is the core activity of rural masses of the area, therefore, plays a imperative role in socioeconomic upliftment of weaker section of the society *viz.* Gujjars, Bakarwals, Chopans, Gaddies and Changpas.

#### Distribution

The breed is distributed in every pocket of Kashmir valley. The breed is found in Anantnag, Badgam, Bandipora, Kulgam, Shopian, Pulwama, Srinagar, Ganderbal, Baramulla and Kupwara districts.

#### Strengths and weaknesses of the breeding tract

- Farmers have a particularly good experience in rearing sheep since times immemorial
- Availability of good wool producing Merino germplasm
- High disease incidence and parasitic burden
- Low mutton productivity
- Overuse of pastures along with inaccessibility to some of pasturelands
- Pasture degradation and encroachments
- Lack of modern technologies to process wool, skin and hide
- Long harsh winters

#### Socio-economic profile of Kashmir Merino sheep farmer

The breed is being reared by the sheep farmers for meat as well as wool production and is known for its fast growth, adoptability, and production of good quality wool



Fig. 1.a. Kashmir Merino Ewe



Fig. 1.b. Kashmir Merino Breeding Ram



Fig. 1.c. Kashmir Merino lambs, ewes and rams





Fig. 2. Kashmir Marino flock at high subalpine pasture

with fibre diameter of 18-22.5  $\mu$ . Sheep farming is mostly mainly practiced by poor, middle aged people of age 40-60 years, male and illiterate people having marginal land holdings. The land holding (irrigated) size varies between 0-22 Kanal and under non-irrigated conditions it ranges 1-31 kanal. The farmers have mostly adopted sheep rearing as secondary source of income. Most of the farmers belong to Chopan cast and Muslim community. All the sheep farmers have good experience of sheep rearing. The flock size varies from 5 to 90 sheep per farmer. The flock composition varies from 3-73 number of ewes, 1-5 number breeding rams and 2-22 young ones. Kashmir Merino farmers breeders have other livestock species also with a herd/ flock size per household of 1-3, 0-4 goats and 0-2 horses % and 0-13 poultry birds. The average total annual income from all sources of the farmers is 110203. The flocks reared by shepherd locally called phol, range from 350-1500 sheep heads.

#### Physical trait

The following traits are recorded for the Kashmir Merino breed:

- **Coat colour:** White 98.79%, Black 1.21%,
- **Head profile:** Narrow 33.21% and Broad 66.79%
- **Eye colour:** Black 4.0%, Brown 10.0% and White 84.0%

- **Face length:** Long 64.57 short 35.43
- **Nasal bridge:** Convex 87.71 Flat 12.29
- **Ear orientation:** Broad, droopy and long 86.64% Rudimentary to short and erect 7.86 Tubular triangular and long 1.93
- **Horn orientation:** Curved backward forward outward 51.90% Curved backward forward inward 48.10
- **Presence and absence of horns:** Polled Female -96.20%. Polled male 8.27% Horned Female 2.10% and Horned Male 82.71%. Horn buds: Female 1.70% Male 9.02%.
- **Colour of hooves:** Blakish brown,
- **Animal behavior:** Kashmir Merino sheep are active, alert and docile type
- **Body size:** Varies from Medium to large

#### Body measurement (cm)

- **Body length:** At Birth (32.0), Weaning (39.0), 6 months (47.0), 12 months (55) and Adults (65.0) on an average.
- **Body height:** At Birth (37.0), Weaning (44.0), 6 months (55.0), 12 months (61.0) and Adults (89.0) on an average.
- **Heart girth:** At Birth (39.0), Weaning (51.0), 6 months (65.5.0), 12 months (75.0) and Adults (99.0) on an average.

- **Paunch girth:** At Birth (32), Weaning (50.0), 6 months (70.0), 12 months (87.0) and Adults (110.0) on an average.
- **Face length:** At Birth (19), Weaning (22.0), 6 months (24.0), 12 months (27.0) and Adults (33.0) on an average.
- **Tail length:** At Birth (29), Weaning (33.0), 6 months (37.0), 12 months (41.0) and Adults (47.0) on an average.
- **Ear length:** At Birth (9.5), Weaning (10.0), 6 months (10.0), 12 months (11.0) and Adults (12.0) on an average.
- **Ear breadth:** At Birth (5.0), Weaning (5.0), 6 months (5.0), 12 months (5.5.0) and Adults (6.0) on an average.

#### Management practice

The bulk of the country's sheep population is found in rural areas and mainly raised by the people of socio-economically weaker sections, living below the poverty line. Similar condition was also prevailing in Jammu and Kashmir. Sheep are reared on semi-intensive feeding systems during early spring and late autumn, intensive system during winter from December to April and extensive system from May to November. The sheep are managed using a mixture of grazing and stall feeding (during early spring and late autumn), stall feeding during winter and grazing practices (during late spring, summer and early autumn). During grazing season, village sheep flocks are reared by the shepherd (locally known as *Pohal*). The shepherds follow semi-migratory, semi-intensive mode of rearing where sheep are shifted to alpine pasture situated at an altitude of 11,800-14,000 ft above mean sea level, from mid-June to mid-September (Fig. 2). During migration sheep get exposed to varied climatic conditions wherein temperature fluctuates from sub-zero during night to 21-32°C during day. At high land pastures sheep are kept in temporary paddocks during nights and let out for grazing during day for about 10-12 hours. The farmers utilize agriculture wastes for making feed and fodders for sheep. Majority of farmers are using paddy straw and

naturally growing grasses, respectively as fodder. Rice bran and wheat bran is also used as ingredient of feed. All houses are closed type mostly pucca houses with proper provision for light and ventilation. Sheep were housed in these houses during harsh winters, early springs and late autumn to prevent animals from severe cold and snow.

### Reproduction management

**Breeding season:** Natural random flock mating is practiced in the breeding tract. Kashmir Merino sheep is a seasonal breeder and exhibits estrus during spring and autumn only. Breeding season ranges April to May and August to December. Age at first heat varies between 510 to 670 days, Weight at

first heat comes between 20 to 25 kg, Age at first service varies between 570 to 700 days, Weight at first service comes between 25.30 to 30.0 kg, Gestation period ranges between 147 to 153 days and the kidding interval ranges between 300 to 350 days.

**Production management:** Body weights (kg): At Birth (1.5-6.0), Weaning (9.5-19.5), 6 months (15.5-25.0), 12 months (19-35) and Adults (29.0-75.0) on an average. Wool production (kg): At 6 months (0.80), 1 year (0.9), and adult (1.5 to 5.5)/year.

### Disease prevalence

The most prevalent diseases in the area were sheep pox, orf, foot root, gid, fascioliasis, cerebrospinal

namatodiasis, mange, diarrhea and other ecto and endoparasitic disease.

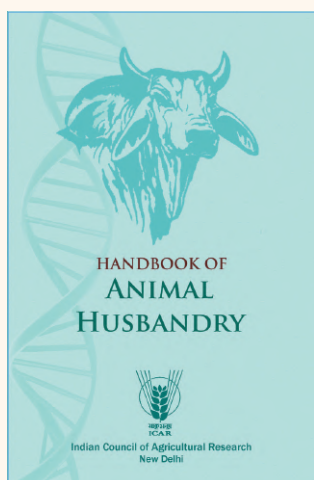
### CONCLUSION

It is concluded from the study that sheep farming in Budgam is mainly practiced by poor, middle aged, male and illiterate people having marginal land holdings and low income with agriculture as main occupation and sheep as secondary source of income. The Kashmir Merino is a variable breed adopted to harsh climate of Kashmir Valley.

<sup>1</sup>Department of Sheep Husbandry, Kashmir, <sup>2</sup>Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir. Corresponding author's e-mail: mubashir.70011@gmail.com

## HANDBOOK OF ANIMAL HUSBANDRY

Livestock sector has created a significant impact on equity in terms of employment and poverty alleviation. After staple crops, livestock sector is the second most important contributor to the agricultural economy. The



producer prices of meat, eggs and milk, in India appear to be highly competitive as the domestic producer prices of these products are quite low compared to the ex-farm gate prices of major exporters in the world markets. A knowledge resource is essential to harness the potential of animal production. The Indian Council of Agricultural Research brought out first edition of *Handbook of Animal Husbandry* in 1962 for serving the end-users ranging from livestock owners to academicians. This is the Fourth revised and enlarged edition of *Handbook of Animal Husbandry* which includes 48 chapters under nine sections, such as Animal Genetics and Breeding; Animal Nutrition and Feed Technologies; Animal Management; Animal Reproduction; Animal Health Management; Animal Biotechnology; Animal Products, Technology and Machineries; Economics and Trade of Livestock and Poultry Enterprise; and Social Sciences. It has 19 new chapters like Impact of Biotechnology, Nanotechnology: Applications in Animal Sciences; Carbon Trading: Mechanisms and Opportunities in Livestock Sector; Intellectual Property Rights

Regime; Indigenous Technical Knowledge etc.; and old chapters were revised holistically. The fourth revised and enlarged edition of *Handbook of Animal Husbandry* will prove useful to the students, teachers, livestock/poultry farmers, and to especially those who visualize the economic growth of country with the support of livestock sector.

### TECHNICAL SPECIFICATIONS

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