Chapter - 1

Introduction
INTRODUCTION

Goat has been described as a poor man's cow because of its immense contribution to the poor people's economy. For poor and landless or marginal farmers, they not only supply nutritious and easily digestible milk and meat but also a regular source of additional income. Perhaps goat was the first animal to be domesticated around 7000-9000 B.C. Domestic goats from the west Asian region were probably brought into India through the migration of nomadic pastoralists who used the route via Khyber pass to the Indian subcontinent. In the degraded areas and uncultivated wastelands, goat dominates and acts as a buffer. Goats are wrongly faulted for desertification of land. Goats are very resistant to diseases specially to tuberculosis and more tolerant to hot climate than other animals.

Goat population in India increased from 64.50 million in 1966 to 109.48 million in 1987 and 115.52 million in 1990. This phenomenal increased, observed in all regions, reflects the farmer's perceptions and testifies to the useful role of goat plays in different farming systems (Krishnamurthy 1991).

Deoghare et al (1989) stated that if we consider the pattern of growth in goat population in different regions during the years
1961-82, we expect the total population of 213 million by 2002 A.D. Among the regions, we expect the Eastern region to lead followed by Southern, Western regions and Northern tropical plains in the order. In the similar projection profile, we assume that West Bengal will be on the top of the table in goat population (38 million) followed by Bihar (36 million), Uttar Pradesh (23 million) and Rajasthan (22 million).

At the end of 1986, out of total world goat population of 492 million, India alone possessed about 21% i.e. 103 million. India is a rich repository of goat germplasm. Besides its numerical superiority in terms of goat population by having nearly 102.8 millions and ranking first in the world, it is also the richest in the world having 20 breeds of goat. Most of the Indian breeds are very low in their production as compared to the breeds of Europe because they are adopted over generations for their survivability under harsh climatic conditions and scanty vegetation resources rather than production. The process of natural selection is under operation for creating adaptation against tropical heat, disease and poor nutrition. Broadly, the indigenous breeds of goats can be classified into three types based on their production characteristics.

1. Dairy type - Jamunapari, Beetal, Jhakrana and Surti.

2. Meat type - Bengal, Barbari, Sangamneri, Sirohi, Marwari, Kutchi,
Gohilwadi, Zalawadi, Mehsana, Osmanabadi and Kannai Adu.

3. Fibre type - Gaddi, Changthangi and chegu. The latter two produce Pashmina.

On the basis of agroclimatic conditions, the Indian subcontinent has been divided into four regions viz. Temperate Himalayan region, North Western, Southern and Eastern regions. The goats of Temperate Himalayan region (where rainfall is low) grow fibres of good quality and possess the fine quality under coat (Pashmina). All the milch breeds are found in North and North West India. Dual purpose goat (milk & meat) breeds are found in South and West India. The high profile meat breeds are found in Eastern India.

North Western region comprising the state of Rajasthan, Gujarat, Harayana, Punjab and Western UP is habitat of majority of the breeds (60%). The notable breeds of this region are Beetal, Jamunapari Barbari, Surti, Marwari, Kutchi, Jhakhrana, Mehsana & Zalawadi, Osmanabadi and Malabari are found in Southern Peninsular region and chegu and changthangi in the temperate Himalayan region.

In Northern region of India, Jamunapari, Beetal and Barbari breeds of goats are very common. While Jamunapari and Beetal are Known as dual purpose, Barbari is suited for milk production and twins/kidding.
Before independence, the British rule in India decided to improve the livestock industry in the country. For this purpose, Harayana and Jamunapari bulls were sent to different parts of India for the improvement of the progeny of cattle and goat respectively. Thus in eastern Uttar Pradesh, Gangatiri or 'Sahabadi' breed of cows was originated with the cross of Harayana bull $X$ Undescribed cow.

Similarly, a new breed of goat known as 'Jaunpuri' or 'Jafrabadi' has been emerged with the cross of Jamunapuri buck $X$ Undescribed goat. As a result of close breeding the germplasm of this breed has been persisted and established well. These goats are generally found in the districts of Jaunpur, Mirjapur, Allahabd, Ghazipur, Bhadohi, Sonbhadra, Mau, Varanasi, Azamgarh and particularly in belt between Ganga and Gomti rivers of Eastern Uttar Pradesh.

The goats of Jaunpuri breed are smaller to Jamunapari but larger to the Barbari goat in size having 30–35 kg of female and 35 to 40 kg of male as body weight. This is dual purpose breed and twins/kidding is common. While goat has generally black colour with white patches, dark brown may be seen in few cases (fig. 1.1 & 1.2). They have wide forehead medium sized ear and horn and well developed udder with prominent milk veins. Jaunpuri goats are docile in behavior, regular breeder having average 3 kidding in two years. The average
milk production is 750 ml/day with 4.2% fat and estimating about 80 kg milk production/lactation.

Due to increase in human population and increase in demand for additional animal proteins, ruminant livestock need to provide these proteins since ruminants convert inedible roughages and crop by-products/residues into desirable human food.

The favourable features of goat keeping are:

1. Goats appear to be more efficient in digesting coarse feed than sheep and cows. This is more significant in the tropics.
2. It is easier to increase the number of small ruminants such as sheep and goats than cattle and buffaloes.
3. The reproductive turn over of goat is high.
4. They can be managed by family labour.
5. The capital investment is relatively low.
6. Average land holdings are small in our country.
7. The genetic variability is much higher which helps in selection for improved productivity.
8. The opportunity costs are low at semi-subsistence level.
9. Goat manure, rich in nitrogen and phosphoric acid, is a good bio-fertilizer. The urine is also rich in nitrogen & potassium.

10. Goat milk is easily digestible due to its higher value of small sized fat globules compared to cow milk.

11. Goat milk has a higher content of vitamin A than cow milk. An important feature of goat milk is that unlike cow milk, it contains no precursors of vitamin A, the vitamin being present intact.

12. Goats have a good prolificacy. Many goat breeds deliver 2 or 3 kids which is rare in other animals.

13. In a scientifically aware community, goat meat could become more popular as it is a lean meat. The fat in goat is located around viscera and muscular part is comparatively lean.

14. All parts of the goat body are utilisable eg. Tallow (fat) is used in the soap industry and high energy animal feeds; bones for bonemeal; ruminal contains as a source of vitamin B; glue and handicrafts from horns and hooves; gelatin; hemoglobin from blood, intestines for sausage casing and catgut; liver for tonics; hair for brushes and rope etc.

Goats come originally from the open mountains and do not like being closely confined. They like plenty of fresh air and love a
clean and dry sleeping place.

Goats generally do not require any special housing, under village conditions but under farm and city conditions, it is economical to provide special housing for goats. Each pen may be 5 inch length, 2½ inch width and 6 inch height. This is enough for a pair of goats. In the case of milch goats, separate pens for kids should be constructed at the very adjacent of the dam’s pen. The partition between the mother and kid should be such that both can see each other. The bucks should be housed away from the milking goats.

Goats in an advanced stage of pregnancy, at least four or seven days before kidding, must be housed individually. Kids from one week after birth to sub-adult stages should be kept at the rate of 20-25 per shed. By making suitable partition in a larger shed, unweaned, weaned but immature and near matured can be housed separately. Drought free small rooms to house 15 to 20 newly born kids are essential to raise a good breeding stock. Isolation shed to keep sick and diseased animals must be provided for away from the rest of the sheds. Beside housing, other facilities to store concentrate feed, medicine, dipping tankes and related materials should be provided.

Proper feeding of goats is much important as feeding of any other farm animals. Lack of attention in feeding may lead to its poor
performance. The ultimate performance of a goat depends on, how a goat is fed during its growth, pregnancy, lactation and dry period? Breeding buck or goat kept for meat purposes will also perform according to their nutrition.

Basically the goats are browsers and thrive in the areas rich in bushy plants where they got enough opportunity for browsing. Proteinous feeds and fodder's like green legumes or their hays are preferred by goats. They like to stand on their kind limbs and pluck the tender leafy twings of herbs, shrubs and small trees. Since goat is a ruminant, its digestive system is adopted to the peculiar process of rumination.

Goats can distinguish between bitter, sweet, salty and sour tastes and goats have a higher tolerance for bitter tastes than cattle. Goats like fresh fodder, they will hesitate to eat wet feed but refuse to take anything which is spoiled by other animals. Goats show preference for leaves and in case the whole plant is put before them, in that case they will eat away leaves and left behind the stem position. The chaffing of fodder reduces the wastage. Regarding concentrates, goats will willingly take crushed corn, barley and oat grains. They also relish oil cake like groundnut cake, rape seed cake, and til cake etc. They are considered to be better converter of fibrous feeds into food like
chevon (goat meat) and milk of high biological value.

A lot of studies have been conducted on the nutritional requirement for exotic and renowned Indian breeds of goat. Unfortunately, not a single study has been taken up on Jaunpuri goats.

Keeping this view in mind, a research proposal entitled "Evaluation and standardizing breed traits of Jaunpuri, an emerging goat breed for rural poor" was submitted to the U.P. Council of Agricultural Research, Lucknow for financial assistance. The council gladly accepted this proposal and sanctioned Rs. 3,97,000 for 3 years duration. The author has worked as SRF during the entire period of project. Project was started on 25.05.98 and finished on 24.05.2001. The present work is a part of this project having following aims and objectives:

1. To determine exact requirement of energy and protein for different categories of Jaunpuri goats.

2. To determine the amount of these nutrients for different purposes like maintenance, meat production, milk production, growth and pregnancy.

3. To suggest suitable recommendations (on the basis of findings) for the rearing of Jaunpuri goats as compared to other Indian goat breeds.