

Sheep and Goat Production in Maharashtra

P. L. Kakade¹, S. H. Tekade² and D.S. Kulkarni³

1. Managing Director

2. Farm Manager

3. Farm Manager

Punyashloka Ahilyadevi Maharashtra Mendhi Va Sheli Vikas
Mahamandal Ltd., Gokhalenagar, Pune-16

1. Introduction

The livestock sector plays an important role in the state's economy; about 70% of population thrives on agriculture. Animal Husbandry is an inseparable component of agriculture sector.

Livestock rearing is central to rural livelihoods in a large part of the globe. In India according to Government reports, in the year 2008, the sector contributed about 5.3% of the total GDP and provided food, fiber, energy and medicine essential for human survival.

Sheep and goat rearing is traditional occupation of economically weaker sections of society, particularly in rain shadow areas. Nearly 40% of our population belongs to economically poor and therefore programmes involving development of these small ruminants will directly benefit this population. Comparatively smaller body size and their adaptability to a wide range of agro climatic conditions have rendered them suitable for weaker sections.

Sheep and goats are mainly reared under extensive range management system on community rangeland, crop residues and forestlands employing self or family labor. Management of small ruminants does not require special skills. The family labor is gainfully employed. Financial inputs are much less as compared to other livestock sector. The market demand for sheep and goat and their products is available through out the year and there is negligible variation in prices obtained.

The National Commission of Nutrition stated that the balanced human diet should comprise 11 kg of meat / annum. However, the current availability in Maharashtra state is only 2.26 kg / annum (from all Species). Due to increasing human population, the average meat availability is not likely to exceed. Therefore rapid increase in meat production is necessary to meet the ever-increasing demand.

Nutritional Advisory Committee of Indian Institute of Medical Research recommended every Indian should get 280 gms. of milk per day per capita, but as per statistical report of GOI for the period –2006, availability is 245 gms. per capita per day. Maharashtra ranks third in Meat production and eighth in wool production amongst all states of India (Source: Basic Animal Husbandry Statistics, 2006).

1.1. Sheep and Goat Population:

As per livestock census of 2008, the population of sheep and goat in the state is 32.57 lakhs and 109.81 lakh respectively.

Table-1 :Division wise Sheep and Goats (Provisional 2007)

Sr. No.	Name of the Division	No. of Sheep	Wool Production during the year 2008-09 (MTs)	No. of Goats	Goat Milk Production during the year 08-09. (000 MTs.)
1	Mumbai (Konkan)	3126	12.959	352112	10.186
2	Nasik	1377376	566.225	3173555	77.692
3	Pune	1626976	777.112	2369037	63.887
4	Aurangabad	235509	158.392	1185165	46.795
5	Latur	165910	81.508	919395	19.258
6	Amravati	198544	74.298	1440810	39.163
7	Nagpur	69790	36.773	1541107	20.269
	Total	3257562	1707.287	10981181	277.250

As per livestock census of year 2003, on National level Maharashtra ranks 6th in Sheep population and 4th in Goat population.

1.2. Sheep and goat rearing

Approximately 92,500 families are depending upon sheep rearing business. Sheep rearing is done in dry climatic districts such as Pune, Satara, Solapur, Sangli, Kolhapur, Ahmadnagar, Nasik, Dhule, Jalgaon,

Aurangabad, Jalna, Beed, Latur, Nanded, Osmanabad, Buldhana, Chandrapur, etc. In goat rearing, approximately 48 lakhs families are engaged. Both the business is carried out by weaker sections of the society.

1.3. Meat Production

Goats \ Sheep constitute a very important species of livestock in India, mainly on account of their short generation intervals, higher rates of prolificacy, and the ease with which the goats as also their products can be marketed. They are considered to be very important for their contribution to the development of rural zones and people. The local initiatives to promote quality labels and innovative products for cheeses, meat and fibres could help goats in keeping a role for sustainable development in an eco-friendly environment all over the world. However, the future of the goat and sheep industry as a significant economic activity will also be very dependent on the standards of living in the countries where there is a market for the goat products.

As per Statistical Report of Dept. of Animal Husbandry, Maharashtra State for the year 2008 – 2009, Sheep and goat meat production is about 34.52 % of total meat production in the state of which 11.34 % is from sheep and 23.18 % is from goats. Estimated average meat production per sheep and goat is 11 kg.

Table-2 :Estimated meat production from all species of animal in Maharashtra (2008-09)

Sr. No.	Species	No. of Animal Slaughtered (000" Nos).	Average meat production / Animal (kgs)	Total meat production (000 MT)	Percentage contribution
1.	Cattle	511.421	126.223	64.553	25.21
2.	Buffalo	703.115	138.738	97.549	38.10
3.	Sheep	2466.183	11.772	29.033	11.34
4.	Goat	5112.838	11.611	59.366	23.18
5.	Pig	218.404	25.274	5.520	2.15
	Total		Total	256.021	100.00

(Source: Integrated Survey Scheme Report on Milk, Egg, Wool and Meat Production in Maharashtra State for the year 2008-09)

Table-3 : Number of Registered Slaughterhouses in the State

Sr. No.	District	No. of Registered Slaughterhouses
1	Brihan Mumbai	1
2	Thane	3
3	Raigad	1
4	Sindhudurg	2
5	Nashik	10
6	Dhule	4
7	Nadurbar	5
8	Jalgaon	19
9	Ahmednagar	7
10	Pune	8
11	Satara	12
12	Sangali	2
13	Kolhapur	13
14	Solapur	4
15	Latur	6
16	Osmanabad	4
17	Beed	11
18	Aurangabad	11
19	Jalna	5
20	Buldhana	47
21	Parbhani	6
22	Nanded	17
23	Hingoli	11
24	Akola	28
25	Washim	14
26	Amravati	26
27	Yavatmal	30
28	Wardha	6
29	Nagpur	14
30	Bhandara	1
31	Gadchiroli	3

32	Chandrapur	7
	Total	338

(Source: Integrated Survey Scheme Report on Milk, Egg, Wool and Meat Production in Maharashtra State for the year 2008-09)

1.4. Export of Meat

The world production of Sheep meat was 8.89 million tones and Goat meat was 5.14 million tones in 2007.(FAO Stat Website) India ranked **sixth** in sheep and **second** in goat meat production, China stood first in Sheep as well Goat meat production. India's export of sheep/goat meat has been increased from Rs. 65.87 Crores in 2006-07 to Rs.134.10 Crores in 2007-08 (APEDA).

Major Export Destinations of India (2007-08):

Saudi Arabia, UAE, Qatar, Germany, Oman (APEDA)

Table-4 : Yearwise Sheep and Goat Meat Export (Source: APEDA)

Year	2005-06	2006-07	2007-08
Quantity (in MT)	7272.97	5777.52	8908.72
Value (in Lakhs)	8104.24	6587.23	13409.96

1.5. Wool Production

The sheep of the state grow a coarse type of wool. The sheep are shorn twice during a year. The first shearing is done during June and July. The second shearing is done after six months, of the first shearing.

The overall average estimated wool yield per sheep shorn is 585 gms. The coloration in Deccani wool is Black, White, Mixed is 57:27:15 respectively. As per statistical report of Department of Animal Husbandry for the year 2008 -09 the estimated wool production of the State during the year is 1707 M. T.

1.6 Goat Milk Production

The estimated Goat milk production for the state during 2008-09 was 277.248 thousand M.T. The average milk yield per goat in-milk per day was about 219 gms. Contribution of Goat Milk in total milk production is approximately 4 per cent

Table – 6: Species wise Milk Production in the State

Sr. No.	Species	Estimated no. of Animals in milk (lakh)	Average daily milk yield/ animal-in-milk	Total Milk Production (000' M. T.)
1	C. B. Cows	1180	6.541	2817.166
2	Cows other than C. B. Cows	1943	1.503	1066.248
3	Buffaloes	2395	3.768	3294.495
4	Goat	3475	0.219	277.248
Total				7455.157

(Source: Integrated Survey Scheme Report on Milk, Egg, Wool and Meat Production in Maharashtra State for the year 2008-09)

Table 7: Estimated Gross Income from Goat – Sheep sector (2006-07)

Sr. No.	Particulars	Production (MTS)	Rate Per Ton. Rs.	Value (Rs. In Lakhs)
A	Goat			
1	Meat	556700.00	13657.34	76030.40
2	Head s	38784.00	7379.91	2862.24
3	Legs	22955.00	8110.05	1861.64
4	Skins	269335.00	5907.49	15910.93
5	Edible offal	34573.00	7351.66	2541.67
6	Fats	14005.00	13743.29	1924.81

7	Horns	3834.00	734.20	28.15
8	Blood	34003.00	3124.31	1062.37
9	Guts/Pouch	35618.00	4938.54	1758.19
10	Esophagus.	3784.00	5139.18	194.45
11	Goat Hairs	352.00	50362.41	177.48
12	Goat Milk (MT)	280960.00	13908.28	39076.71
13	Hoofs	2977.00	734.20	21.85
Total Gross income from Goat Sector				1,43,451.69
B	Sheep			
1	Meat	266710.00	13061.14	34835.36
2	Heads	18896.00	6833.29	1291.24
3	Legs	13044.00	7495.05	977.30
4	Skins	128150.00	4356.78	5583.21
5	Edible offal	16496.00	6987.54	1152.69
6	Fats	5103.00	13273.29	677.30
7	Horns	1452.00	1042.31	15.13
8	Blood	13649.00	3390.51	462.76
9	Guts/Pouch	21853.00	5331.48	1165.07
10	Esophagus.	895.00	4804.49	43.02
11	Hoof	1137.00	1042.31	11.86
12	Wool	1667.00	59671.98	994.60
Total Gross income from Sheep Sector				47209.80
Total Gross Income from Livestock and Poultry sector				13,27,437.00
Contribution of Goat sector				10.80%
Contribution of Sheep sector				3.55 %
Total Contribution of Sheep and Goat Sector				14.35

2. Goat Breeds of the State

Osmanabadi, Sangamneri, Surti Breed as well as non-descript goats are reared in the State.

a) **Osmanabadi Breed**

Osmanabadi is a main goat breed of the State. This breed is originated and habitat of Osmanabad District and its adjacent district of Maharashtra-Andhra-Pradesh States. Osmanabadi goats are mainly black in color (73%), remaining are patches with black-white, tan or patches with tan- white are also observed. Twinning percentage is approximately 35% to 40%, triplets are 3-5% and quadruplet's is 1-3%, remaining are singles. Osmanabadi is a medium size and dual type of breed. These goats are hardy and three kidding in two years are observed. Average birth weight is approximately 2.5 to 3kg. And they are sold at the age of 8 to 9 months, i.e.18 to 20 kg. of body weight. Average meat yield is 40 to 45% and milk production is 180 lts. in 210 days of lactation period.

b) **Surti**

Surti goats are found in Nasik, Dhule, Jalgaon districts of the Khandesh area, which are adjacent to the Surat district of Gujrat State which is habitat of Surti breed. Surti goats are famous for milk; it is a medium size breed, white in color, medium sized ear, small horns, and very well developed udder. It is very useful for stall-fed rearing system. The average milk yield is 150 liters per lactation of 165 days.

c) **Sangamneri**

Sangamneri goats are habitat of " Sangamner", and its neighbour talukas of Ahmadnagar district and are also found in Junnar taluka of Pune district. Sangamneri goats are famous for meat purpose. It is also a medium size breed, mainly white in color, but black or brown spots are also found in this breed. Ears are medium and drooping, udder is small. In this breed twinning is approximately 54%, single 42%, triplets 3% and quadriplates are 1%. The average milk yield is 70 to 80 lts in 90 days of lactation.

d) **Kanyal**

Kanyal goats are found in Kudal, Sawantwadi, Dodamarg, Malvan and Vengurle talukas of Sindhudurg district of Konkon. These goats are black, white marking on collar, and lower jaw, ventral surface is white, and muzzle is white, half moon type. Average

birth weight is 1.99 kg; at 3rd month is 8.69 kg, 6 month 13.79kg. These goats are regular breeder and breeds round the year. Twinning percentage is about 66 %. Research on this breed is undertaken by Dr. Balasaheb Sawant Konkon Krishi Vidyapeeth, Dapoli., Dist. Ratnagiri.

3. Sheep Breeds of the State

A) Deccani

The breed of sheep reared in the Maharashtra is called as Deccani sheep. Predominantly sheep population black (57%), white (28%), and mixed color (15%). Deccani breed has some prominent strains such as Lonand, Sangamneri, Solapuri(Sangola) and Kolhapuri.

a. Lonand

These types of sheep are found in Jejuri, Indapur area of Pune district and Lonand area of Satara district. These sheep are predominantly white in color, wool is rough in nature.

b. Sangola

These types of sheep are found in Sangola taluka of Solapur district. Majority of these sheep are black in color, wool is fine and long, hence fetches good price.

c. Sangamneri

These types of sheep are found in Sangamner taluka of Ahmadnagar district and Yeola & Nandgaon talukas of Nashik district. These sheep are tall and tan-black face, white body is a main feature of this breed. These sheep are strong and hardy.

d. Kolhapuri

These sheep are found in Kolhapur district and its adjacent districts of Karnataka State. These sheep are akin to Bellary sheep of Karnataka.

A) Madgyal

This sheep is habitat of village Madagyal Tal- Jat Dist- Sangali. Pure forms of sheep are found in Madgyal Abachiwadi, Pandozari, Sanmadi, Sonyal, Kunikunar, Asangi, Sang, Daribadchi, Mirwan, Ankali and Shegaon.

This sheep have prominently white with brown patches and Roman nose is typical character of this breed. This breed has got average weight gain of 200- 225 gms per day, and hence it is known as meat breed. Wool is rough and annual yield is 250-260 gms.

4. NGOS working on Sheep and Goats

a. Nimbkar Agriculture Research Institute (NARI, Phaltan)

The institute is maintaining indigenous and pure exotic Boer, Damascus and their crosses and supplies rams and bucks for breeding purpose to the farmers. It is also imparting training in Goat AI programme. It is having semen freezing lab and trained staff and a diagnostic as well as biotechnology labs to carry out different investigations. NARI is supplying the rams carrying one or two copies of the Fec B gene to increase prolificacy of the Shepherd's Deccani ewes.

b. BAIF Development Research Foundation, Uralikanchan, Pune

Goat breeding and improvement activity has been taken up by BAIF in Maharashtra, Karnataka and West Bengal State. The activities of BAIF include regular Vaccinations and deworming at village level, training programmes for farmers, women SHGs, training in AI for Sheep and Goat, production of frozen semen pallets.

c. ANTHRA, Bavdhan, Pune

The NGO is publishing and distributing educational material to the Sheep and Goat farmers. They are also supplying herbal medicine where needed and also providing training to the farmers.

d. BOSCO Gramin Vikas Kendra, Kedgaon, Ahmednagar

This was started in 1986 with main objective to implement Watershed Development Programme in Nagar District. They are promoting SHGs with goat farming. It also has training centre. The farm has started boer goat crossing in 2001.

e. Rural Agriculture Institute, Narayangaon (RAIN)

Sanen goat was imported from England, Israel and Australia for breeding purpose .This institute is supplying Sanen bucks throughout India. This NGO also conducts Goat Management Training courses.

5. Conservation of Indigenous Breeds

1. Breeder's Association for each breed of Sheep and Goat

In Maharashtra, Osmanabadi, Sangamneri, Konkon Kanyal are the main goat breeds and in sheep Deccani, Madgyal are the main breeds.

At present, there is only one breeders association i.e. Samajratna Shivajirao Shendge Sheep and Goat Breeders and Wool Producers Development Board (Reg. No. MH/487/2007/Pune) working in Maharashtra for development of Deccani Breed.

The Association was started on 22/03/2007 and there are 1209 members registered with this Association. It works with this Corporation for implementing "Integrated Sheep and Wool Development Scheme" in Sangali District. Association is also implementing the programmes of Central Wool Development Board, Jodhpur.

7. A. I. Activities in Maharashtra

At present, breeding on farms of the Corporation as well as in the field is carried out through natural breeding only. However, to achieve the results of upgrading at a faster rate over a wider area, A.I. is a useful tool. The technique will also help in increasing the availability of superior quality rams and bucks.

In Maharashtra NGOs like NARI, Phaltan and BAIF, Uruli-Kanchan, Pune are implementing A.I. techniques in sheep and goat, on their farms as well as under field conditions. NARI, Phaltan is promoting cross breeding in goats using frozen semen of Boer goat. Where as BAIF is

promoting Awassi and Madras Red breeds of sheep and Sanen, Osmanabadi, Sirohi, Barberi and Jamunapari breeds of goat.

8. Breed Registration

As per report of NBAGR, Karnal, the registered breed of Sheep and Goat in Maharashtra State are –

Sr. No.	Breed	Registration No.
Goat Breeds		
1.	Osmanabadi	INDIA_GOAT_1100_ OSMANABADI _06017
2.	Sagamneri	INDIA_GOAT_1100_ SANGAMNERI _06018
Sheep Breed		
1.	Deccani	INDIA_SHEEP_0111_ DECCANI_14021

Phenotypic and genotypic characterization studies of other sheep and goat breeds of Maharashtra should be undertaken and should be registered accordingly.

9. BREEDING POLICY FOR SHEEP and GOAT

A) Task Force on Sheep, Goat and Rabbit Production during 1996

Ministry of Agriculture, Department of Animal Husbandry and Dairying, Government of India established Task Force on Sheep, Goat and Rabbit Production during 1996. The Task Force considered several strategies for small ruminants and rabbit development in the country. It was felt that on station animal breeding did not yield desired results in terms of impacts and acceptance by farmers. Efforts so far have been sporadic and isolated from the realities (1.3.6, page no. ii).

After review of all available information, task force recommended that, "In goats, limited experimental breeding programme with Alpine and Toggenburg be taken in field in Rajasthan. Results indicate that exotic germplasms and cross breeds donor performs better than indigenous

animals under similar field conditions. Another farm based experiment at a smaller scale was attempted to produce Angora fibre by cross breeding indigenous goats with Angora bucks in Himachal Pradesh, Jammu – Kashmir, Maharashtra and Rajasthan. This experiment was not successful, as farmers did not adopt the new genotype. With the threat of diseases such as Caprine Arthritis, it is recommended that no breed improvement programmes which involves large scale importation of exotic goats from Europe and other countries where disease has been endemic should be taken up. Wherever exotic germplasm is available in the country, the same should be tested for CAE and other diseases and pooled at two or more locations. Further, indigenous breeds of goats have high prolificacy, which is lost when cross breeding is undertaken. The number of kids weaned per doe being an important economic trait and as the species is the preferred animal for meat, indiscriminate introduction of exotic blood is not desirable [Para 3.5(iii) :53].

Goat and sheep breeding policy recommended by Task Force Committee for Maharashtra is as under:

I) Goat:

- a. **Breeding Policy:** The main thrust is to improve Osmanabadi, Surti and Sangamneri breeds but no breeding policy has been implemented to improve the local non-descript goats.
- b. **Recommendations:** Selective breeding should continue for the three breeds. Non-descript goats should be upgraded with Osmanabadi /Sirohi/Kutchi. Open nucleus herds should be established at existing goat farms (Para No: 3.5.11:58).

II) Sheep:

- a. **Breeding Policy:** Sheep should be developed for dual purpose with emphasis on body weight of the animals. Rambouillet and Russian Merino was utilized for cross breeding of local sheep in certain areas where flock owners are progressive. Corriedale rams were utilized for cross breeding of local sheep in suitable pockets.
- b. **Recommendations:** Selective breeding of Deccani sheep for improving both mutton and wool production. Open nucleus flocks may be established for production and supply of superior rams. Cross breeding with Rambouillet may be undertaken in the areas where the population of White Deccani is high and flocks are sedentary. State farms should multiply and provide Rambouillet or Rambouillet Crosses for improvement programmes. Introduction of

Awassi sheep for improving mothering ability and body weight may be attempted (para no.2.10.11:41).