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Goat farming for rural livelihood security in India

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Abstract

Goat is a major livestock species in rural India, providing milk, meat, hide and hair. India is having rich genetic biodiversity in goat population and ranks first in goat population. Recent data on animal census and production statistics indicate that most of the goat population resides in rural areas in small scale units and per animal productivity is rather low. As goat production and rearing is free from societal taboo, it is preferred in rural areas as extra means of income. These low productive animals, if bought under a systematic breeding programme can form the backbone of social and economic upliftment of rural farmers.

Key Words: Goat rearing,Goat breeds of India, semi-intensive system, programmes for goat improvement.

Introduction

Goat is one of the major livestock species in rural areas, especially in developing world. It provides milk, meat and hide and that too by utilizing relatively poor-quality forage and crop residues. The main advantage of goat farming is that it can easily thrive on low quality fodder, require less housing management and less prone to diseases. Goat meat and milk both are popular throughout the world. Goat milk is believed to have many medicinal qualities and it is easy to digest.Due to its wide ecological range goat is reared almost everywhere in India and provides an important source of income and livelihood in rural areas. Due to these qualities goat has been termed as "poor man's cow". The world goat population has shown a continuous increment starting from 1961 to 2019,

this increase has been found more sharp from 1991 to 2019 (FAOSTAT, 2020). The current world goat population stands 1,094,068,295 in which Asia contributes the largest share of 57.5 % followed by Africa (33.8 %), Americas (5.5 %), Europe (2.9 %) and Oceania (0.3 %) (FAOSTAT, 2020). Evidentially, the developing world constituting Asia and Africa contributes the major portion of goat population in world. Out of these, India is ranked first in goat population followed by China and Pakistan. In India, the current goat population is 148.88 million as per 20th livestock census of the country, which is 27.7 % of the total livestock population. There has been a 10.14 % increase in goat population as compared to 2012 livestock census. Since, 1951 up to 2007 there has been a constant increase in total goat population of the country where the population increased from 47.2 million to 140.5 million. This increment experienced a decline in 2012, when the population was 135.2 million which was again increased in 2019. During this period (2012 to 2019) goat population increased by 10.35 % in rural and 5.78 % in urban areas. Among the states Rajasthan has the highest number of goats (20.8 million) followed by West Bengal (16.3 million) and Uttar Pradesh (14.5 million) (20th livestock census of India).

Goats are generally reared for meat and milk, however some of them also provide hair and fibre like Mohair from Angora goat. India is second in world ranking in goat meat production, first being China. In India, goat meat contributes 13.53% of total meat production of the country (BAHS, 2019). Besides meat, milk is yet another important product of goat, especially in India. India has been a top producer of goat milk with a production average of more than 2 million tonne, followed by Bangladesh (FAOSTAT, 2020). Goat milk contributes 3% of total milk production of our country (BAHS, 2019). Although, there is an increase of milch goats from 2013-14 to 2018-19 from 30.91192 to 36.83431 million, average milk yield per animal remains constant (0.45 Kg/ day) (BAHS, 2019). These data are indicative that India is blessed with a huge population of goat, however, per animal productivity still remains low. Hence, there is a scope for improvement in rural goat population that will aid in economic and social upliftment of rural farmers as well as national economy.

Goat genetic resources of India

There are about 351 breeds of goat in world, out of which,India has 34 recognised breeds of goat distributed over the entire 15 agro-climatic zones. Besides meat and milk, there are some breeds that used for fibre production also. Basically, the breeds from temperate Himalayan region like Chegu, Gaddi have long hairs which are used for fibre including meat and little amount of milk. Northwestern region comprises of states like Haryana, Punjab, Rajasthan, Gujrat, parts of Uttar Pradesh and Madhya Pradesh, the most prominent breed of these region is Jamunapari breed. Jamunapari is dual purpose breed and is widely used in up-gradation programmes. Other breeds of this region include Marwari and Zalawadi (used in meat and hair production), Beetal, Kutchi, Sirohi, Beetal etc. which are used for milk and meat. The southern regions consist of states of Maharashtra, Kerala, Tamil Nadu and Andhra Pradesh and breeds of this region are mainly of meat type. These include Berari, KonkamKanyal, Attapady

Black, KanniAdu, additionally some breeds of this region like Sangamneri, Osmanabadi are reared for meat and hair both. Eastern region consists of states of Bihar, West Bengal, Odisha, breeds of this region are meat type like Black Bengal and Ganjam (Mandal *et al.,* 2014). Apart from these native breeds, there are 11 transboundary breeds as per DAD-IS database. However, these registered breeds are continuously under threat due to lack of breeding bucks, indiscriminate breeding and intermixing etc.

Goat rearing in India – Systems and Programmes

Goat production systems are highly variable in India. It may vary from keeping single goat up to hundreds. However, as most of the goat population is found in rural areas there are smaller number of units that are more prevalent. Goat units of upto size 5 are 15.9%, 5 to 21 are 38%, 21 to 100 are 43% and greater than 100 are only 2%, therefore, smaller scale units are more prevalent. Due to smaller average land holding these smaller goat units are important parts of mixed farming system. In general, goat production system can be classified as –

1. ***Tethering*** – It is sedentary system of rearing and requires minimum labour. It may be combined as tethering and grazing system and up to 5 to 10 animals can be easily maintained in such conditions.
2. ***Extensiveproduction*** – Mostly found in low rainfall areas with plenty of grazing ground or browsing plants availability. Mostly followed by nomadic people.
3. ***Intensivesystem*** – In this system goats are kept in confinement and are grazed in a limited area of land. Mostly fodder in fed in stalls and best control over feeding and management can be there. But this system requires more investment and high labour cost. It can only be practiced by high income group.
4. ***Semi-intensive*** – This is the most prominent and practiced system of goat rearing. This allows for flexibility in rearing as per feed and fodder availability. This system allows more economic returns. Under this system, animals are housed in nights only, housing can be open pens, half open or closed "*pakka*" sheds. Kids are generally housed separately either in separate pen or by dividing the existing structure. During the day time the animals are grazed in fields.

As discussed earlier, there is a large number of goat populations which are non-descript type and requires improvement. For genetic improvement of such populations, there are various programmes undertaken at central government level.AICRP on Goat (All India Co-ordinated Research Project on Goat), was a national level programme, started in 1971 for improving efficiency of milk, meat and fibre production in goats by extensive cross breeding between Indian and exotic high yielding breeds. Crossbreds were reared in intensive condition to study their production performance. Afterwards crossbreeding was stopped and within breed selection in Indian breeds was advocated. Present emphasis of the programme is within breed selection and improvement of Indian breeds as per the home tract and climatic conditions. One other significant programme was the Indo Swiss Goat Development and Fodder Production Project, started in 1981 for genetic improvement of Indian breeds using crossbreeding with development of fodder to increase meat and milk production in goat. The project was initiated in

Rajasthan. However, due to less gain in milk yield as per expectation the project was terminated in 1992 (Thiruvenkadan and Rajendran, 2015). It was also envisaged that animals in rural areas have health problems and yearly occurrence of some diseases causes economic loss to farmers. To address this issue NADCP was launched in 2019, with the aim to vaccinated all livestock for FMD, PPR and Burcellosis. Similarly, provisions has been made under National Livestock Mission and Animal Husbandry Infrastructure Fund for development of small scale goat rearing systems (DAHD, GOI) providing goat units of variable sizes ranging from 10 females : 1 male upto 50 females : 5 males to rural farmers. These units are given on loan + subsidy basis for purchase of animals, feed and miscellaneous (material for housing, medicine etc.). Such schemes are meant to impart scientific rearing of animals in rural areas, thus, making goat rearing a profitable business for rural masses.

Constrains and improvement strategies

Goat rearing is an important aspect for socio-economic upliftment of rural areas. However, goat improvement programmes on national levels have not yielded the desired results. There are variety of constrains in goat improvement, especially in rural areas. The major factor being lack of elite animals and breeding herds. Goat rearing is mainly restricted to rural areas that too under a semi intensive or extensive system of rearing, therefore, even though we have a rich genetic diversity in goat breeds, there is a lack of elite breeding herds. Also, the rural herds are small in size and scattered to a larger area thus making identification of elite animals difficult. The second constrain is the continuous shrinkage of grazing land / area. Thus, lack of feed and fodder. This restricts the animals that can be reared per family, especially in rural areas. Similar to above, there is a lack of awareness among the farmers on scientific rearing and feeding thus reducing the profit margin (Thiruvenkadan and Rajendran, 2015). However, some of these issues are being monitored by implementation of NADCP project under which every animal is given a unique 12-digit identification number. These are then registered as per village/ block and districts and then merged in a central database. This may later on helps in identification of elite animals, breeds and their distribution so that proper planning for their genetic improvement can be made. In general, genetic improvement strategy for goats should focus on the following points –

1. Mapping of breeds as per areas and their utility-wise improvement. Followed by cataloguing of their production performance in particular area and production system.
2. Preservation of genetic diversity – it is of utmost importance that genetic diversity should not be hampered during improvement programmes, hence, indiscriminate crossbreeding should be avoided. Hence, improvement should be adopted within breed either by grading up selection or by using cross breeding utilizing sires from Indian breed.
3. Structured breeding system – As in ruminants, cattle and buffalo, there should be a structured breeding system for goats too. Once elite animals are identified for a particular tract or area, they can be utilised using any structured breeding

system. Open nucleus breeding scheme can be adopted in medium income rural areas, where, high merit bucks can be given for improvement of local stocks. In areas where there is availability for grazing land, breeding centres or breeding farms can be established, that only distributes the good producing animals as small units but will also provide extension and training services.

4. Improvement in fodder availability– this is very important step as grazing land in becoming less and less, there is an urgent need to impart scientific feeding and rearing technologies in rural areas. This should be coupled with the use of local forages and minerals as fodder and mineral mix.
5. Healthcare and market facilities – healthcare is very important specially for rural farmers. Often the healthcare facilities are scattered and timely intervention is not possible.Farmers should be made aware of importance of healthcare, housing and vaccinations, so that disease incidences and mortality can be reduced. They must also be made aware of the principles and utility of quarantine and isolation of animals during purchase or illness. Although, marketing of goat meet may not be a serious issue, as it is widely acceptable in most of the rural areas, farmers should have access to profitable market, reducing the requirements of middlemen (Thiruvenkadan and Rajendran, 2015).

Conclusion

Goat are hidden treasure of our livestock enterprise. With such a huge breed diversity, we have ample amount of genetic variation in goat population, which is, adopted to local climate, fodder and production systems. Goat rearing is mainly practiced in rural areas in small scale systems using a semi-intensive or extensive system of rearing. There is an immense need for intervention in goat rearing system and genetic improvement of goat population. Goat meat and milk are highly acceptable throughout the country without any religious or social taboo, goat rearing does not require much investment for development of intensive system of rearing, and hence it can form backbone for social and economic upliftment of rural farmers vis-à-vis rural economy.

References

20th Livestock census of India (2019). Animal Husbandry Statistics Division, Department of Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry and Dairying, Govt. of India, New Delhi.

Basic Animal Husbandry Statistics (BAHS, 2019). Department of Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry and Dairying, Govt. of India, New Delhi.

Domestic Animal Diversity- Information System (DAD-IS) of FAO, Online Database URL- http://www.fao.org/dad-is/en/(Accessed on 19-04-2021).

FAOSTAT Online database URL - http://www.fao.org/faostat/en/ (Accessed on 19-04-2021).

Mandal, A., Karunakaran, M., Rout P.K. and R. Roy (2014). Conservation of threatened goat breeds in India. Animal Genetic Resources. 55: 47–55.

Thiruvenkadan, A.K and R. Rajendran (2015). Strategies to Improve Goat Production in India. Proceedings of International Seminar "Improving tropical Animal Production for Food Security". 3-5 November 2015, Universitas Halu Oleo, Kendari, Southeast Sulawesi, Indonesia.