Management and conservation of Munjal sheep: a threatened sheep population of Northwest India

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ABSTRACT

Despite having better reproductive efficiency, economic importance and distinct identity, Munjal - a mutton-type sheep population of north-western region of India is not recognized as a descript sheep breed. The breeding tract of Munjal sheep was surveyed to study its managemental practices as well as to assess population status. A total of 107 random sheep flocks were accessed in their breeding tract and only 32 sheep flocks from three different locations were found to have Munjal sheep. It was observed that farmers were maintaining their flocks under zero-input system. Due to socio-economic and other factors, reduction in breeding tract was observed. The number of animals is continuously dwindling and the current population exhibited its threatened status. Based on field assessment, current population status, inputs provided by the farmers, stakeholders and state animal husbandry and veterinary officers; SWOT analysis on this sheep population was conducted. Accordingly, we suggest improvement and conservation model useful for development of rational breeding and conservation strategies for this important ovine genetic resource of India, which is not an option but an immediate necessity to check its present scenario of threat to extinction. It is recommended that besides recognizing Munjal sheep as a national sheep breed; the core action of establishing a nucleus flock and implementing it as open nucleus breeding system with exchange of rams between nucleus herd and farmers flocks is warranted immediately.

Key Words: Conservation; management and Munjal sheep.

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INTRODUCTION

Munjal, primarily a mutton-type sheep, is popular among the farmers of Punjab, Haryana and Rajasthan states of India for its better reproductive efficiency. It is supposed to have originated through the breeding of Nali and Lohi sheep and is found in districts of Hisar, Ambala and Karnal of Haryana; Patiala and Bathinda of Punjab; and Ganganagar and Hanumangarh of Rajasthan (Basuthakur 1988, Mason 1988). These sheep are customarily reared by shepherds and landless farmers under zero-input system. They graze them mostly at the outskirts of villages, on stubbles of the harvested crops, banks of canals and roadsides. Information on population, distribution and other aspects of this sheep population is very scanty. Kushwaha et al. (1999) studied the characteristics of Munjal sheep in parts of Rajasthan and Punjab in farmers' flocks. Poonia (2008) established that Munjal sheep under organized farm conditions is very economical due to its earlier maturity, faster growth and shorter lambing interval as compared to Magra, Malpura and Muzaffarnagri sheep breeds. Despite having better reproductive efficiency, mutton and wool production, economic importance, distinct identity, availability of reasonably sound infrastructure for animal husbandry and veterinary services in its breeding tract, proximity of stakeholders to research organizations for better programme formulation, implementation and coordination; Munjal sheep has not been included in the list of descript sheep breeds of India, and thus have lived through times of identity crisis. As it is least discussed among the Indian sheep, the present study highlights its breeding tract, population status, managemental practices and conservation strategy. A typical Munjal ram has been shown in Fig. 1.

MATERIALS AND METHODS

A random survey of 107 sheep flocks at three locations, Karnal (Haryana), Bathinda (Punjab) and Hanumangarh (Rajasthan) was conducted in the breeding tract of Munjal sheep. Only 32 flocks, having varying numbers of Munjal sheep were chosen for studying the managemental practices and population status. For arriving at judicious and practical conservation strategy, SWOT analysis of this sheep population was done based on data collected from the field, and inputs given by field functionaries as well as the farmers.

RESULTS AND DISCUSSION

Management: Munjal sheep are primarily maintained on grazing. Farmers graze them mostly at the outskirts of villages, stubbles of the harvested crops, banks of canals and roadsides. The flocks travel a distance of 3-20 km. per day for grazing. The sheep flocks are largely stationary. Majority of farmers provide housing especially during night, generally in open enclosures. In 12 % cases (n=32), the sheep pens were part of owner's own house, whereas in the rest these were located adjacent to the owner's dwelling. The boundaries of the enclosures were made of tree branches/ bushes. Some farmers also housed their sheep in stonewall thatched houses. Farmers, barring a few, do not provide any supplementary feed to any category of animals i.e. lactating ewes, pregnant ewes or lambs. Department of animal husbandry and veterinary services vaccinate sheep against Haemorrhagic Septicaemia, Enterotoxaemia, FMD and Sheep Pox. Drenching is done against internal parasites.

The lambing season in Munjal does starts from April-May

(minor season) and becomes steadier during October-November (main season). Annual lambing is about 60-80 % with lambing interval of 5-6 months. Twinning is 4-10 %. The mortality is about 5-10 % in adults and 4-6 % in lambs. Age at puberty in females is 10-12 months. Age at first lambing of ewes is about 15-18 months, while age at first breeding of rams is 12-15 months. Breeding life of a ram is 6-10 years. Rams are selected on the basis of body size and conformation. Animals are generally shorn twice a year in September-October and March-April. Average greasy wool production is about 1800-2500 grams per annum as compared to 600-1000 Gms per annum in Muzaffarnagri sheep (Kumar et al, 2006). The farmers considered body weights in 3-6 months age-group important for disposal of lambs and those between 12 -18 months for selecting breeding rams. The price of wool varied from Rs. 35-40/- per kg (less than 1US$). Depending upon the condition of the animal, prices of adult ewes and rams varied from Rs.2500-3000/- (55-65 US$) and Rs.8000-12000/- (175-275 US$), respectively. Three months old surplus male lambs were sold for Rs 1000-1200/- (22-27 US$) whereas ewe lambs were mostly kept for replacement.

The average flock size was 53 comprising of 36 ewes, 2 rams and 15 lambs. The farmers also maintain rams of Muzaffarnagri, Nali and Kheri breeds in their flocks. The percentage of Munjal sheep in the studied flocks was 42. Thus, intermixing of nearby breeds has primarily resulted in decline in purebred population of Munjal sheep. Sheep farmers/shepherds (n=32) maintaining Munjal sheep were socially backward and economically marginal. The families belonged to low-income group; 95% were landless and remaining had 4-11 acres of land. The average family size was 6.82 with 3.38 females. The overall literacy was 28 % indicating low level of education. Besides maintaining sheep, 40%, 53%, 84% and 13% percent of farmers also maintained cattle, buffalo, goats or fowl, respectively; 19 percent of them additionally maintained both cattle and buffalo.

Conservation: Recently there has been considerable interest in the management and conservation of world's animal genetic resources. One hundred and ninety out of 7600 breeds on record have become extinct in the past 15 years, and 1500 are considered at risk of extinction. The high rates of loss of indigenous breeds in developing countries, coupled with inadequate programs for the effective use and management of these genetic resources, is reducing livelihood options for the poor (FAO, 2007; CBD, 2008). In this regard conservation of Munjal sheep is of particular interest from the point of view of its economic importance and threatened population status. For arriving at a practical and judicious strategy, we have done the SWOT analysis of this sheep population based on data collected from the field, observations from the farmers and inputs given by field functionaries. Factors that give strength to this sheep population are- its better reproductive efficiency, mutton and wool production, availability of reasonably sound infrastructure for animal husbandry and veterinary services in its breeding tract, proximity of stakeholders to research organizations for better programme formulation, implementation and coordination. Sheep rearing is not without its share of constraints and bottlenecks. Some weaknesses observed with respect to this sheep population include- paucity of elite and true-to-breed breeding rams with the farmers, breed dilution due to crossbreeding with other breeds, non- availability of grazing area and fodder due to growing mechanization and urbanization, low literacy and education level among the sheep rearers, inadequate knowledge of diseases control and poor extension facilities for sheep rearing. Despite these weaknesses, new plans, programmes and outlays would improve the livelihood of the poor farmers through adoption of sheep husbandry practices. The opportunities include- threatened population status of Munjal, its importance in livelihood of landless and marginal farmers, public- private partnership for wool and mutton industry, formation of 'Munjal Sheep Breeders Association' for propagation of the precious germplasm and protection of sheep rearers' interests, developing agro-forestry based community pastures, utilization of existing infrastructure for breed improvement and conservation and organizing multilayer 'best rams competition shows' at block, district and state levels. Munjal sheep also faces threats from many facets which include- threatened population status, identity crisis i.e. non- recognition as a distinct breed at national level, intermixing with other local sheep breeds, indiscriminate slaughtering due to the demand for mutton, abandoning of sheep rearing by farmers due to alternate better market opportunities, lack of support price of wool and dearth of organized market for mutton, wool and animals resulting into exploitation by middlemen, sustainable financial backing and non-availability of micro credit to shepherds.

Analyses of the above 'SWOT' break up reveals that unfortunately 'weaknesses and threats' far outweigh the 'strengths and opportunities'. The total sheep population in the 32 flocks studied was 1704 comprising non-descript, Munjal, crosses of Munjal with Nali, and Muzaffarnagri. Munjal type sheep population was only 676. Kushwaha et al. (1999) conducted a preliminary study on the characteristics of Munjal sheep in Ganganagar and Hanumangarh districts of Rajasthan where farmers kept mostly breeding rams in their flocks supplied/purchased from nearby areas of Punjab. They reported adult body weight in males and females as 65.93±2.43 and 45.37±0.99 kg respectively and number of Munjal sheep was around 1600. Present study having wider base indicates that the body weight of ewes has declined marginally while that of rams has decreased considerably over the period of last one decade. This is accompanied by a significant and alarming depletion in the Munjal population during the last decade. It appears that a very serious situation has arisen which may lead to complete loss of this important sheep population. Therefore, conservation of Munjal sheep population is not an option but an immediate necessity to check its present scenario of threat to extinction. Besides initiating different steps like sheep health care activities, forming Munjal sheep breeder's society, developing agro-forestry based community pastures; the core action of establishing a nucleus flock and implementing it as open nucleus breeding system with exchange of rams between nucleus herd and farmers flock is warranted immediately. The roadmap towards achieving the goal can be

broadly presented in the conservation strategy given in Fig-2.

CONCLUSIONS

Our study demonstrates the current status of breeding tract and population of Munjal sheep. It is observed that though the sheep keepers/shepherds preferred Munjal sheep in the past because of its heavy size, early breeding and substantial wool production, yet its present population in the breeding tract indicates threatened status. The study revealed that there is substantial shrinkage in its breeding tract presently limiting to some pockets of Karnal (Haryana) and Bathinda (Punjab) districts. Reduction in wool prices, non-preference for breed purity due to non- availability of proven rams, and several socio-economic factors such as indiscriminate slaughtering due to the demand for mutton and abandoning of sheep rearing by farmers/shepherds due to alternate employment opportunities, lack of support price of wool, non-availability of organized market for mutton, wool and animals resulting into exploitation by middle man, sustainable financial backing and non-availability of micro credit to shepherds have cropped up as some of the major hurdles in the proliferation of Munjal sheep. The existing genetic dilution in the farmer's flocks due to intermixing is posing further dangers to its identity and population status. Besides this, lack of initiatives on the part of developmental and policy making agencies such as recognition as a descript breed, and systematic and concerted efforts for its breeding and improvement had their own toll on the present scenario.

We have also suggested improvement and conservation strategy of Munjal sheep population. The strategy would prove a handy tool for development of programmes/policies aimed at conservation and improvement of this precious ovine genetic resource of India. It is recommended that besides recognizing Munjal sheep as a national sheep breed; the core action of establishing a nucleus flock and implementing it as open nucleus breeding system with exchange of rams between nucleus herd and farmers flocks is warranted immediately.

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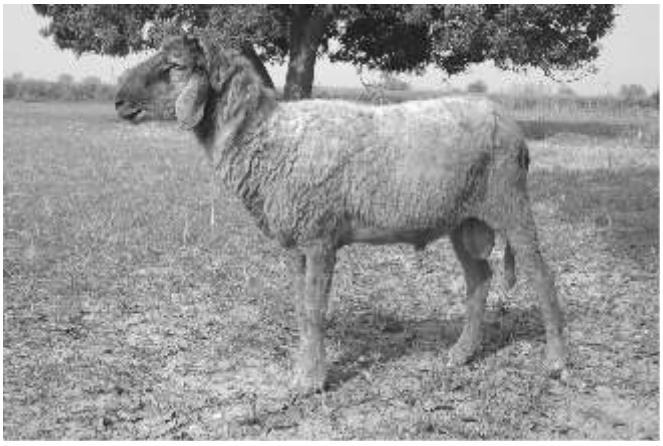
Fig. 1. A Munjal Ram



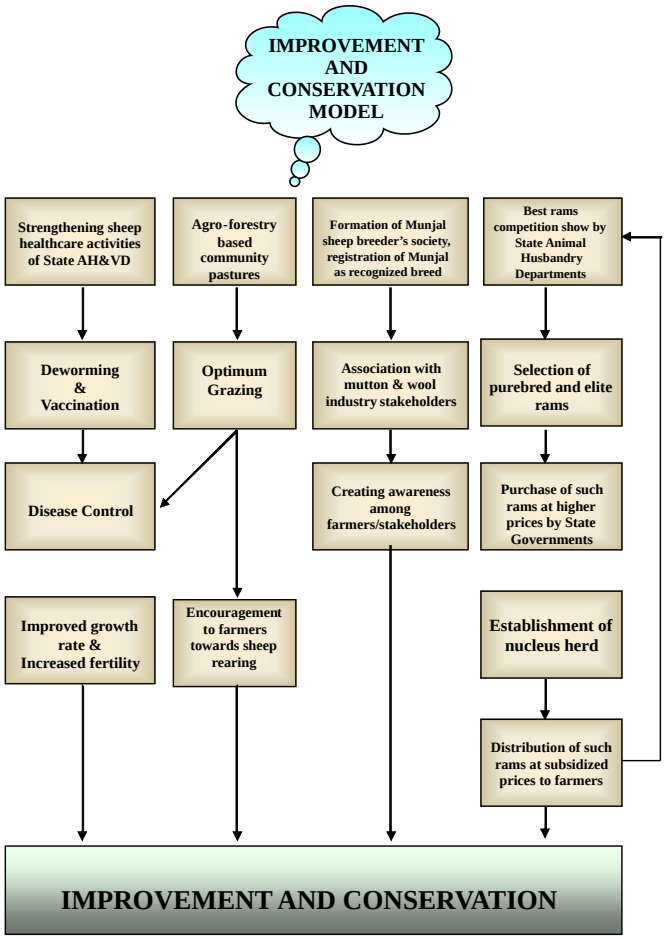


Fig. 2. Munjal sheep improvement and conservation model.