

Observation of Rearing System of Small Ruminants in Jumla District

R.P. Sah¹, M.P. Yadav¹ and S. Kanu²

¹Sheep and Goat Research Program, Guthichaur, Jumla

²Agriculture and Forestry University, Rampur, Chitwan

*Corresponding author: rpsnarc@gmail.com

ABSTRACT

Small ruminant production is one of the main sources of meat in Jumla district and contributes in the food security of the nation. A study was carried out at Guthichaur and surrounding areas of Jumla district to observe the rearing system and management practices of small ruminant. Twenty farmers from Guthichaur, Jumla with a flock size of 100 to 350 animals were interviewed about the rearing system, management practices, and health problems. Sheep was a major livestock commodity and most of the farmers raised sheep and goat together in transhumance system (migratory sheep flock). Baruwal, Bhyanglung and their crosses in case of sheep while Sinhal in case of goat were found to be common in the study areas. From the beginning of summer season (Falgun-Jestha), the animals were grazed in the nearby field during the day and kept in shed at night. In winter, where it snows, they were kept in shed and fed hay and stored corn due to limited grazing area. At night, some farmers kept their sheep, goats in shed while some farmers kept their sheep outside in field. From third week of Jestha to fourth week of Bhadra, farmers moved their flock to high hills called Patan to graze on locally available herbs. Farmers performed open castration on their animals by themselves and besides deworming the debilitated animals, they generally didn't deworm or vaccinate their animals. Some of the major health problems observed in the animals were plant poisoning, parasitic infestations, scabies and lice infestation, pneumonia, abortion, uterine prolapse, vaginal prolapsed, and inbreeding. Farmers kept the same male for seed material for many years and were found to be unfazed by the consequence of inbreeding.

Keywords: Rearing system, small ruminant (sheep and goat), transhumance system, Jumla

INTRODUCTION

Small ruminant production is one of the main sources of meat in Jumla district and contributes in the country's food security. Sheep is the major livestock commodity in Jumla district compared to goat. Farmers raise sheep in transhumance system (Tiwari

et. al., 2020), also called as migratory sheep flock, popular in Himalayan regions, where farmers practice seasonal migration of their animal for pasture. Farmers adopting this rearing system generally don't practice regular vaccination, deworming, and health management practices that lead to various health burden in the animals. Previous study has reported ovine fascioliasis in fecal test (34%), slaughtered sheep (6.7%) and post mortem examinations (23.5%) with mature flukes apparent in liver and gall bladder of inspected sheep (Sah et. al., 2020). Observation of the transhumance rearing system adopted by the indigenous people in the remote area like Jumla is essential to understand their husbandry practices, identify the challenges they face for the health management of their flock, and the constraint they face to improve the nutritional need for their animals. Understanding of the annual cycle of transhumance rearing system in Jumla can help the government to formulate essential policies and converge the focus that could uplift the livelihood of the farmers and support the food security of the nation. This study highlights the transhumance rearing system and management practices including health status of small ruminant in the surrounding areas of Jumla.-

METHODOLOGY

Observational study of the rearing system of small ruminant was carried out in Guthichaur and surrounding areas of Jumla. Twenty farmers' group from Guthichaur, Jumla with a flock size of 100 to 350 animals were interviewed. Among the groups of farmers, eight had combined their smaller flock to a larger one. Farmers were interviewed in field and at the river basins. They were asked about the rearing system/pattern, feeding, vaccination and deworming schedule, general health problems etc.

Brief description about study area:

- Sheep and Goat Research Program (SGRP), Guthichaur Rural Municipality ward no- 2, Jumla and surrounding areas
- 19 Km from District head quarter (Khalanga) Jumla.
- Rainfall: 755 mm (June-Sep: 85%)
- Temperature: Max.27.3°C to Min. -5.7°C
- Snowfall: December to March
- Relative humidity: 60-84%
- Sunshine hour: 9.3 hrs in winter
- Latitude: 29°17'72.5" N
- Longitude: 82°40'83.4" E
- Elevation: 2700 MASL (Meters Above Sea Level)

Data analysis

Data were collected, compiled and analyzed in descriptive way by using MS Excel and SPSS.

RESULTS AND DISCUSSION

Farmers raised sheep and goat in transhumance system (migratory sheep flock). Sheep was the major livestock commodity followed by goat. Baruwal, Bhyanglung and their crosses in case of sheep while Sinhal in case of goat were found to be common in the study areas. Limited improved breeds like Romney marsh and Coopworth cross were also found among some farmers as Sheep and Goat Research Program introduced the breeds a few years ago. Flock sized ranged from 100-350 to 15-50 animals).

Transhumance rearing system of ruminants (migratory sheep flock)

From the beginning of summer season (Falgun-Jestha), sheep were grazed all day in the nearby field. At night, some farmers kept their sheep and goats in shed while some kept their sheep in the field outside the shed. In winter, when it snows, they were kept in shed and fed hay and stored corn due to limited grazing area

During the rainy season (from 3rd week of Jestha to 4th week of Bhadra) most of the farmers moved their sheep to upper hills or mountain area (Patan) where the animals were grazed mostly on herbs and small shrubs available in the area. Buki (*Anaphalis contorta*), a highly nutritious grass, was found abundant in those areas. Observation from this study was found similar to what reported by Sapkota et. al. (2020). Generally, they take their sheep to upper hill in Jestha/Ashar and bring their flock to river basins in the first to second week of Bhadra (Sapkota et. al., 2020). Migratory sheep movement observed in this study ranged from elevation of 1250m to 4500 m during various seasons similar to reported elsewhere (Ghimire and Chapagain, 2020). Farmers with larger flock took care of their flock by themselves, whereas, those with smaller flock combined 4-5 flock into a larger flock. Farmers combining their smaller flock into a larger one did grazing duty on rotation with 2-3 farmers staying in the shed for a week or 10 days.

By the middle to 4th week of Bhadra, animals were brought down to the river basin and kept in the Jungle or in the growing field under the open sky until Ashoj as reported elsewhere (Sapkota et. al., 2020). From Ashoj, when vegetation starts becoming scarce, they made the flock size smaller and took to their houses. They reared the animals in small flocks until beginning of the next warm season completing the annual grazing cycle.

Practice of feeding salt

Since winter was very dry in those areas and animals did not get green grasses throughout the year, farmers offered salt to their sheep and goats once or twice every month to overcome the mineral deficiency. They poured some salt on grass or on a rectangular stone to let the sheep get their essential minerals.

Practice of wool shearing

Wool Shearing was done twice a year: once in Falgun-Chaitra and next in Bhadra-Ashoj. Wool shearing was done with shearing scissors in SGRP, Guthichaur farm, and in the villages. Some farmers sheared wool even with sickle. With shearing scissors, one person could shear 6-7 sheep in a day.

General health practices

Deworming and Vaccination

Farmers generally didn't deworm or vaccinate their sheep except for the weak and debilitated ones. They didn't routinely vaccinate their sheep against PPR and FMD although some were aware of the benefit of vaccination, however, they were found cooperative when some NGOs or District veterinary hospital offered the vaccine.

Castration

Majority of farmers performed open castration sheep by themselves at the age of 4/5 months. Only some farmers castrated their sheep through closed castration method using Burdizzo castrator. In open surgical castration, they did not ligate the blood vessels. They burnt the feces of sheep to ash and applied in to the scrotum after castration, whereas, some farmers used turmeric powder, antibiotic powder, povidine iodine e.t.c as antiseptic. Consequently, they have lost their castrated sheep due to heavy bleeding and infection. Farmers near Sheep and Goat Research Program castrated their sheep with Burdizzo castrator by help of animal health technician.

Major health problems

Major health problems faced by farmers were plant poisoning, parasitic infestations, scabies and lice infestation, pneumonia, abortion, uterine prolapse, vaginal prolapsed and inbreeding etc. A few published reports showed that Pneumonia, Fascioliasis, other parasites, abortion, prolapse, plant poisoning etc were the major health problems in sheep in Jumla (Sah et. al., 2020; 2021; 2022).

Parasitic infestations

To overcome the problem of parasitic infestation, they applied cypermethrin (Tick out) solution soaked cloth on to the animals during Chaitra to Baishak (small scale dipping). Some farmers dewormed their animals once or twice in 2-3 years period. Generally, they used Albendazole, Oxycloznide, Piperazine etc. for deworming. They dewormed their sheep after lambing season during Magh to Falgun. In SGRP premises, Fasciola is endemic, and tapeworms were also found in abundance (Sah et. al., 2020).

Plant Poisoning

A specific type of herbal plant (locally called bikh- *Aconitum* species) is found in the bank of rivers/streams. After consumption of this plant, animal becomes lethargic, and foaming

from mouth, recumbency and bloating were apparent, eventually leading to death, if untreated immediately. This plant grows in the beginning of warm season where green fodder is scanty increasing the risk of sheep consuming the poisonous plant. Every year, almost 4-5 sheep die in each flock because of this plant poisoning. Pandey and Gyawali (2012) also reported that poisonous plants often account for the loss up to 10-15% of lamb per year in the moving flock, especially during the spring season near the summer pasture. Atropine sulphate injection @ 0.4 mg/kg b.wt. and sodium thiosulphate @ 5-10 gm dissolved in 100-200 ml water were used to counteract the poisoning. Oral drenching of sodium thiosulphate immediately after poisoning reduced the mortality to 90-95 %.

Uterine and vaginal Prolapse

Sporadic cases of uterine and vaginal prolapsed cases were common in those areas. One sheep in nearby farm at Kolte had uterine prolapse during the study period.

Pneumonia

Because of the cold weather, onset of pneumonia gradually leading to death was observed in the sheep. Additionally, since the animals were kept in the shed during winter, they also suffered from suffocation due to poor ventilation. Even during the rainy season when the sheep were moved to Patan, they were kept under open sky in cold environment putting the animal in risk of pneumonia. The shepherds had to carry some general medicines for first aid in Patan as there were no veterinary services available. A post mortem examination of a dead sheep showed yellowish fibrin like materials surrounding the lungs and multiple necrotic foci throughout the lungs.

Inbreeding problems

Farmers kept the same male for seed material in the flock for many years. It was difficult to convince them that inbreeding occurs when the same male is kept in herd for many years. Farmers perceived that large sized rams were better than smaller ones and they kept same large ram in their flock for many years. Adhikari et al., 2103 mentioned in a study that most of the flocks in migratory system used the same breeding buck for 4-5 years without considering inbreeding affects. The average body weight of one-year-old male sheep in farmers' possession weighing 12-13 kg compared to 20-22 kg at Sheep and Goat Research Program (SGRP) further questions the breeding quality of sheep among the farmers.

CONCLUSION

Transhumance rearing system of small ruminant is in practice in the hilly regions of Nepal including Jumla. A seasonal movement of livestock between agro-ecological zones for pastures have been adopted by the farmers while still facing numerous challenges and constraints. Indigenous husbandry practices performed by the farmers in Jumla to

move the flock to the high hills of Patan to access the nutritious grasses, ad lib grazing, while dodging the hot climate in the lower altitude let them take the benefit of unused natural green fodder. However, their potential contribution in the country's food security along with their grappled thriving situation need to be highlighted more to improve the livelihood of the farmers, herd-health management and economy. Awareness on disease management and good husbandry practices, timely technical support and guidance, accessible and affordable veterinary services, linkage to livestock/meat market, and other promotional business ideas from the animal products and by-products could be some of the challenges that need to be addressed from the central government and local sector as well.

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