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Assessment of the Production System, Breeding Strategy, Constraints and Opportunities of Sheep Production in Doyogena Woreda, Kembata Tembaro Zone, Southern Ethiopia

[1]Belay Elias, [2]Alemayehu Darsabo, [3]Negash Desta and [4]Wahid M. Ahmed

[1]Hawassa University Faculty of Veterinary Medicine, Hawassa, Ethiopia
[2]Wolaita Sodo University Department of Animal Science, Wolaita, Ethiopia
[3]Addis Ababa University Faculty of Veterinary Medicine, Bishofitu, Ethiopia
[4]Department of Animal Reproduction & A.l, Veterinary Research Division, National Research Centre, Giza, Egypt

Abstract: The study was conducted to evaluate sheep production system. Breeding strategies identify major constraints and opportunities in the Kembata Tembaro zone Doyogena woreda. Both primary data through structured questionnaire and secondary data from relevant office, published and unpublished data source were generated using 80 statistically selected respondents. To enrich the primary data, field observation and group discussions were also made. The agricultural production system of the study area was mixed crop-livestock production system. Result indicated that higher percentage (72.5 %) of households keep their flock in the extensive system while 27.5% were kept under some intensive management practice. The average flock size per household in the study area was 5 heads. The average experience of sheep breeders was 22 years. The educational level of majority (77.5%) of study participants was categorized under primary school and able to read and write. The main reason for sheep keeping by majority of respondents (90%) was as income source. Sheep are housed in the some house used with household (100%) no separate house with other livestock species. Established posture, natural pasture, crop residue and purchased feed were the main feed sources in the study area. The majority of farmers were providing supplementary feed their sheep in study area (85%). The most common breeding strategies in the study area were community based breeding sheep selection strategy. The main objective of breeding strategy in the study area was to enhance sheep productivity and to produce new breeds of sheep. Body size, lamb growth, twinge and colour, were the most frequently reported traits in selecting breeding ewe across in the study area. Multiple (twin) birth is very common in the flock (77.2%). The results of this study indicated the most common disease in the study area was pastorilosis (90%). Land scarcity, capital shortage, disease and parasite, scarcity of water, uncontrolled mating and low veterinary service were the major challenge in limiting sheep production in the study area. The most common opportunity in the study area were suitable agro ecology, presence of a good sheep breed, access of market and credit, feed access, access NGO and access of breeding group and government intervention according to their order of the most important sheep production.

Key words: Doyogena · Production · Breeding · Constraints and Opportunities

INTRODUCTION

Sheep (Ovis Aries) are believed to have been among the first animals to be domesticated, preceded by Dog and Goat. The domestication of both Sheep and Goat probability dated back to pre-settled agricultural period. Ethiopia is the largest in livestock population in Africa and tenth in the world. This largest livestock population contributed about 15-17% of the total GDP and 35-49% of agricultural products which helps export commodities like live animals, hides and skins. However, the traditional production system depends on lands and family labors.

Corresponding Author: Negash Desta, Addis Ababa University Faculty of Veterinary Medicine, Bishofitu, Ethiopia.
E-mail: nagne@yahoo.com.

While modern practice remain a little which characterized by large capital requirements and employ substantial amount of hired labor and distinguished through the production factors (Land, labor and capital). The available feed resources of small ruminants are natural pasture, crop residue, cultivated forage and industrial by product and other by feed resources derived from herbaceous forages, trees and shrubs, food crop residues, agro-industrial by products, mineral supplements and other by products. Inadequate feed quality and quantity, diseases, poor breed potentials and inadequate sheep policies of credit, extension, marketing and infrastructure are the major limitation that affects sheep performances of Ethiopia. In Ethiopia, the traditional production system, the natural feed sources and much limitation of sheep production is the unique characteristics of the country [1].

In Ethiopia, sheep are the second numerous farm animals with nine diverse breeds and ecotypes distributed across the different agro-ecologies ranging from cool alpine climate of the mountains to the arid pastoral areas of the lowlands [2]. Ethiopia is believed to have the largest livestock population in Africa. This livestock sector has been contributing considerable portion to the economy of the country and still promising to rally round the economic development of the country. It is eminent that livestock products and by products in the form of meat, milk, honey, eggs, cheese and butter supply etc., provide the animal protein.

Contribute to the improvement of the nutritional status of the people. Estimates indicated that about 28.89 million sheep found in Ethiopia, out of which about 72.84% are females and about 27.16% are males [3].

Objectives:

- To assess sheep production system in the study area,
- To determine sheep breeding strategy in the study area and
- To identify major constraints and opportunities of sheep production in the study area.

MATERIALS AND METHODS

Description of the Study Area: This study was conducted in Doyogena woreda of Kembata Tembaro Zone, Southern Ethiopia. The woreda is located 171 km in south west of Hawassa, the capital city of the region of SNNP and 258 km south of Addis Ababa. According to the information obtained from the Doyogena woreda finance and Economic development office [4] the total population was about 101618, out of which, 49889 were males and the remaining were females. The woreda is divided into 17 kebeles for administrative purpose. Among these 17 kebeles, 13 of them are rural and 4 of them are urban kebeles. The woreda is bounded by Angacha woreda in eastern direction, Hadiya Zone in North West direction, Kachabira woreda and partially Hadiya Zone in southern direction. The altitude ranges from 1900-2800 meter above sea level with the agro-ecological condition of 70% dega and 30% of woinedega. The average temperature ranges from 10°C-16°C and the rain fall ranges from 1200 mm to 1600 mm [4]. In terms of farming system, the community practices animal rearing and crop production (Mixed farming system).

Sampling Techniques and Sample Size: From the total 17 kebeles of the woreda, 4 kebeles (Three from dega and one from woinedega) were selected randomly. From each kebeles, 20 farmers, a total of 80 farmers that rear sheep were selected by using purposive sampling technique.

Data Collection Method: The primary data were collected from study participants by using structured questionnaires. Focal group discussions were made with key informants to enrich the primary data. Secondary data were collected from relevant documents of different offices.

Data Analysis: The collected data were analyzed by using descriptive statistics such as mean, percent and frequency. The study results were presented using tables. For ranking of major constraints and opportunities of sheep production, priority index was employed using the following formula:

Priority index = (F1×3) + (F2×2) + (F3×1): where
F total
F1 = frequency of the first rank F2= frequency of the second rank
F3 = frequency of the third rank FT=frequency of total respondent

RESULTS AND DISCUSSION

Household Socio-Economic Characteristics: From the total of 80 households interviewed to generate quantitative data on sheep production, about 85 % were

male headed and the remaining 15% were female headed. This indicates that the sheep production activities were mainly carried out by men. This calls for giving due attention for female headed households to participate in such low labour and special income generation activities to their profit. The results regarding to the average family size of the households indicate that the average family size was 8 where as the maximum is 10 and the minimum is 6. The farmers had an average experience of 22 years in rearing sheep. The age category of the respondents indicates that 45% were in between 30-40 years, 37.5%) were between 41-50 and the rest 17.5% were above 50 years which indicates that sheep production can be performed by productive groups. The educational status of the respondents as indicated Table 1 were 10% illiterate, 30% were able to read and write, 45.5% attended primary school and the rest (12.5%) completed secondary school.

Flock Type and Size of the Households: The major flock type reared in the area were ewe, lamb, ram castrated and ram intact. As an integral part of the mixed farming system, sheep production plays a substantial role in the household, food security in the study area. In general, among the interviewed households, 42% of the flock were ewe, 32% were lamb, 15.6% were castrated ram and the rest 10.4% were intact ram. The average sheep holding of the respondents was 6. These finding agreed with those of Taye *et al*. [5].

Production System, Purpose of Keeping Sheep and Source of Sheep: The most common production system in the study area was mixed crop-livestock production system. From total of eighty sample respondents reported, sheep production system in the area indicated that 58(72.5%) of respondents keep their sheep under extensive system followed by 22 (27.5%) who practice under semi-intensive management system. The result of the production system is similar with the finding of Tafesse [6].

The major reasons of rearing for sheep in the study area is presented Table 3 and the result indicates that the primary reason of keeping sheep as majority of the respondents (90%) reported is as a source of money to supplement family income, (8%) of respondents keep sheep for consumption during festival and the remaining respondents keep sheep (2%) as security. The source or initial foundation stock of sheep for farmers is buying from market (76.3%) and gift from the parents (23.7%). This finding is similar to Tafesse [6] and Feleke [7].

Table 1: Household Socio-economic Characteristics

Socio economic characteristics	Frequency	Percentage
Level of education		
Illiterate	8	10
Able to read and write	24	30
Primary school	38	47.5
Secondary school	10	12.5
Age of household (years)		
30-40	36	45
41-50	30	37.5
>50	14	17.5
Sex composition		
Male	68	85
Female	12	15

Table 2: Flock type holdings of sample respondents

No	Flock type	Number	Percentage
1	Ewe	202	42%
2	Lamb	153	32%
3	Ram (intact)	50	10.4%
4	Ram (castrated)	75	15.6%
5	Total	480	100%
6	Average flock size	6	

Table 3: Purpose of keeping sheep and Source of sheep

No	Purpose of keeping sheep	Frequency	Percentage
1	Source of income	72	90%
2	Direct consumption	6	7.5%
3	For security	2	2.5%
	Total	80	100%
	Source of sheep getting		
1	Buying from market	61	76.3
2	From parent gift	19	23.7
	Total	80	100

CONCLUSSION

Doyogena has adequate natural resources, suitable agro-ecology, better productive local sheep breed, long trained and experience of sheep production and breeding practice .However , mainly because of the existence of various constraints to sheep production, including land scarcity, shortage of capital, disease and parasite, feed sacristy, scarcity of water, inadequate veterinary service and uncontrolled mating the woreda in general and rural sheep producing and breeding households in particular have not been sufficiently benefited from sub-sectors. Established pasture, natural pasture, crop residue and purchased feed/agro industrial by-product were the main feed source for sheep in the study area. Body size, lamb growth, twinge rate and color the most important selection criteria of breeding ewes and also appearance in color of the ram accounted for emphasis during selection. Despite, all the challenges and problems currently limiting the

sheep producing sub-sector, there are still enormous opportunities and potentials to increase the production and quality of sheep products in the study area. Entirely extensive production systems along with feed shortage call improvement of husbandry practice.

Therefore, attention should be paid to the following actions:

- Teaching the farmers about improved technology in raising the high potential of sheep to be promoted.
- The veterinary facilities need to be too modernized to minimize preventable disease and parasitic problems.
- Establishing sheep breeder group or cooperatives and teaching them different breeding practice, like selection system, mating system, feeding practice and flock management practice are done by woreda livestock and fisher development office integrating with other relevant office or organization it should be important to improve sheep productivity in the area.
- To alleviate the existing feed problems of the study area different feed utilization techniques such as treating straw , cut-and carry system , improved forage development practice and also training and frequent extension for farmers about forage production and feeding system should be exercised in the area .
- Efforts should be made to alleviate the main constraints that hindered sheep production and breeding in the study area.

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