# ASSESSMENT OF INDIGENOUS SHEEP PRODUCTION PRACTICE, AND MARKETE OPPORTUNITY AROUND GONDAR AREA, ETHIOPIAN

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**ABSTRACT**: Sheep are relatively cheap asset purchased by a young poor family recovering from disasters, drought and/or war. The study was conducted in Gondar town which will found in Amhara Regional State in North West Ethiopia on sheep production performance, marketing and management practice. The result showed that 70 % of the respondents replied that separate house from family and other cattle is used 30% can used not separate from family. Production system in the study area dominated by semi intensive system showed, (80%) with the major housing system in the study area is separate from family and other cattle (7% and 30%) not separate from family. Feed of the sheep Grass, straw with atela and nug cake cover 41.7 % 40.0 % and 18.3 respectively. Water sources of sheep are river (15%), pond (3.3%) and tape water (81.7%) from this majority of them use tape water (81.7%). The major disease in the study area is internal parasite" that was reported by 33 .3 % of respondent. The others are fasciola (28.3%), mastitis (20.0%) and dystocia (8.3 %). The method of sheep selling locally used by eye estimation around (76.7%) weight of live animal (18.3%) and (5.0%) both by eye estimation and live weight of animal. The result should that there is land shortage, as a result the governmental and nongovernment organization should provide input, training and skill development programs to develop extensive production system in to semi-intensive and then intensive progressively.

**Keywords**: Indigenous Sheep, Marketing, Management Practice.

## INTRODUCTION

Ethiopia has a diverse sheep population, numbering 23.6 million, in parallel with its diverse ecology, production systems and communities. A comprehensive phenotypic and genetic characterization of Ethiopian sheep populations was initiated in 2005 to provide a nationwide framework for the management of sheep genetic resources (Solomon, 2008)

In addition to direct income benefits lives stock provide in direct benefit serving as a means to store assets for their beyond the reach of the banking system, as a source for fuel and fertilizer from manure and as a drought power for farm production (Gebremariam et al., 2010). Alemayehu (2002) indicated that Ethiopian, with over 42 million of sheep and goat. The third largest number of sheep and goats among African nations and ranks eighth in the world (Mukasa et al., 2002). Ethiopia's vast sheep and goat population, estimated at 24 million and 22.3 million heads, respectively CSA (2007) is found widely distributed across the different agro-ecological zones of the country (Kassahun, 2004). In Ethiopia livestock account for 15 to 17 percent of total GDP and 35 to 49 Percent of agricultural gross domestic product (ESGPIP, 2008).

Small ruminate production is an important agricultural enterprise in Ethiopia. According to the report of (CSA, 2007) Ethiopia has 25 million sheep. Sheep production in the crop livestock production system of high land area has very important role in contributing to the food security as well as in generating cash income. Sheep provides for their owner with a vast range of products and service such as immediate cash income, meat, milk, skin, manure,

risk avoidance and social function (Adene and Abebe, 2008). They are also a source of foreign currency. Sheep with their higher reproduction capacity and growth rate are widely suited to production by resource poor small holder (Berhanu et al., 2006). Indigenous sheep are resistance to disease and parasite, good flocking instinct, ability to walk long distance in search feed, high to tolerant to adverse climatic condition Endurance to Drought and to law and fluctuating nutrient availability (Kosgery et al., 2008).

Lack of adequate feed as the main constraint of sheep production is more produced in the mixed crop livestock system, where most cultivated and huge human populations are located (Sisay, 2006). Another serious challenge for small ruminant production in Ethiopia is high privacy of disease and parasite. Disease that limit the productivity of small ruminant in Ethiopia include; Pleuronemonia, ecthyma and brucellosis. This disease because high mortality of sheep and diminishing benefit that can get from their high production performance (Gizaw et al., 1995). Objectives of this study were: A) to identify the major constraints of indigenous sheep production system in the study area; B) to asses production, management and marketing constraint and opportunities of indigenous sheep in the area.

## MATERIALS AND METHODS

### Description of the study Research Site
The study was conducted in Guraghe Zone, Southern Nation Nationalities and peoples of Ethiopia Regional State, located 155 km south west of Addis Ababa between $7.8^0$ to $8.5^0$ North latitude and $37.5^0$C - $38.7^0$ East longitude (CSA, 2017). The mean annual temperature of the zone ranges between $13-30^0$c and the mean annual rain fall ranges 600-1600mm. The rainfall pattern in the Guraghe Zone is bimodal in which 80% of rain falls in the rainy period of June to August whereas 20% in the short rainy period of February to May.

### Sampling technique and Sample size
The study was conducted in Gondar town located in Amhara Regional State in North West Ethiopia, in which 739 Km far from Addis Ababa at an elevation of 2,220 m.a.s.l. The city has a latitude and longitude of 12°36'N 37°28'E and 12.6°N 37.467°E respectively. Annual rain fall varies from 880-1172mm with the average annual temperature of 20.3°C. Human population of the town is 206,987 and administrative area 40.27km2. The area is characterized by two seasons, the wet season extended from June to September and dry season stared from October mid-April.

### Sampling Technique and Sample Site
The researcher was conducted in three kebles (keble16, keble17, kebl18) purposively selected Keble (the smallest administrative areas in the town) of Gondar town. The criteria employed for the selection of the research area was based on accessibility and presence of indigenous sheep population in around Gondar area. During the research 20 households having sheep raring experience was interviewed using a semistructure questioners in each kebele with total of 60 respondents were participated during the data collection process.

### Data Collection and Management
Both primary and secondary were collected in the study area of which the primary data was obtain through semi- structured questioners and direct observation in and around the research kebele of Gondar twon while, the secondary data sources were obtained from different reference books and internet access and recent finding about the production and marketing opportunities of indigenous sheep in the study area. Both the primary and the secondary data was managed in Microsoft excel spread sheet and directly transferred in SPSS version 22 for further analysis. In the data analysis descriptive statistics (mean separation) frequency, were employed to quantify the problems, and Pearson's chi-square test were used to compare significant level ($P<0.05$).

## RESULTS AND DISCUSSION

### Demographic Characteristic of Respondents
The demographic characteristics of the respondents was showed that in (Table 1) male to female proportion were 36 (60%) and 24 (40%) female respectively. whereas, the distribution of age set up to be less than 16 (6.7%), between 16-64 (80%), greater than 65 (13.3%) correspondingly. furthermore, the educational status of the respondents depicted that, illiterate, reading and writing, complete primary and high school were found 5 (8.3%), 23 (38.3%), 24 (40%), 8 (13.3%) in that order.

### Flock Composition of Indigenous sheep

The research result showed that average number of sheep per household, ram, ewe, lamb, ewe lamb and ewe lamb and ram were found, 3 (5%), 8 (13.3%), 1 (1.7%), 22 (36.7%), 26 (43.3%) of indigenous sheep respectively. since, the proportion of both ewe, lamb and ram significantly showed high proportion that was due to the composition of the indigenous sheep kept by the individual farmers for different function (mating, breeding and generation cash income).

### Purpose of Sheep Rearing in the study area

The result showed that the purpose of rearing indigenous sheep production system sowed that, 26 (433%), 16 (26.7%) and 18 (30%) were reared for the purpose of cash income, house consumption and both function. the result depicts that, a significantly high for the function of income generation whereas house consumption become the second contribution of the local sheep in the study area, this is due to the income of the community become very low and farmer primary objective for rearing local sheep type is to increase their financial revenue that indicated in (Table 3) below the result showed in agreement with the finding of Getahun (2008).

| Table 1 - Socio demographic Character of the respondents | | | |
|---|---|---|---|
| Socio economic character | | Frequency | Percentage |
| Sex | Male | 36 | 60.0 |
| | Female | 24 | 40.0 |
| Age | <16 | 4 | 6.7 |
| | 16-64 | 48 | 80.0 |
| | >65 | 8 | 13.3 |
| Educational status | Illiterate | 5 | 8.3 |
| | Read & write | 23 | 38.3 |
| | Primary school | 24 | 40.0 |
| | High school | 8 | 13.3 |

| Table 2 - Flock composition of sheep | | |
|---|---|---|
| Type of sheep | Frequency | Percentage |
| Ram | 3 | 5.0 |
| Ewe | 8 | 13.3 |
| Lamb | 1 | 1.7 |
| Ewe lamb | 22 | 36.7 |
| Ewe, lamb & ram | 26 | 43.3 |
| Total | 60 | 100 |

| Table 3 - Purpose of sheep rearing | | |
|---|---|---|
| Purpose of sheep rear | Frequency | Percentage |
| For cash income | 26 | 43.3 |
| House consumption | 16 | 26.7 |
| Both | 18 | 30.0 |
| Total | 60 | 100 |

### Sheep Production System

Even through extensive, semi intensive and intensive production system were practiced in the study area, a significant variation was observed in semi-intensive sheep production which accounted 46 (80%) of the respondents, while the second production system was extensive in which 10 (16.7%) similar with (Alemayehu, 2002). Semi-intensive system of sheep production was more dominantly practiced by in the study area this might be farmers become more aware of providing some supplementary feeding of sheep in the area, while other respondents practiced extensive this might be due to feed shortage to feed in house and/ or may be lack of awareness of supplementary feeding or less attention to its economic contribution of sheep to the community. Intensive sheep production 2 (3.3%) of the respondents practiced intensive sheep production system this had in agreement with the result of Judith (2006). The research result showed that 42 (70 %) of the respondents practiced a separate sheep house from family and other 18 (30%) used the sheep house together with their family this create some health problems to some of the member of the family due to the waste and bad odor of the sheep excreta.

### Feed and Source of Water

Feeding system is one of the most important aspects of sheep management practice, thus the findings depict that, natural grass, straw with *atela and n*ug cake, found to be 25 (41.7), 24 (40%), 11(18.3) respectively. the sources of water for sheep were found river (15%), pond (3.3 %) and tape water (81.7 %) from this majority of them use tape water (81.7%) since, the production system was also semi-intensive which has the experience of providing tap water as supplementation also factual for sheep production in the study area agreed with Gebremariam et al. (2010).

### Major constraint of Sheep Production

As true for most part of the country there were different problem that affect to production and productivity of animals. Feed shortage and internal parasite were found the first and the second most challenges in sheep production problems 20 (33.3%) and 17 (23.3%), correspondingly and the other problem were clearly mentioned in Table 6. To improve the product and productivity of sheep the management should be kept well and veterinary health service were found adequate which should realized by cleaning sheep house, vaccination and providing clean feed and water and by treating them when they are infected and had similar result with Kassahun (2000).

### Method of Sheep Selling

Market of sheep about 76.7% of respondent market sheep based on eye estimation of the weight and on the traditional evaluation condition score of the sheep.18.3% market the animal on basis of live weight using the scale and 5.0% both live weight eye estimation. selection of sheep for fattening indicated that the physical appearance such as conformation, physical characteristics, base their color, body length, tail size, horn presence and ear size similar with Notter (2000).

### Problems and Reproduction System of Sheep

A year round mating is practiced in the area as far as rams and bucks are available in the Household or in the nearby villages. Farmers in the sites monitored bring ewes or does in heat to rams or bucks in the respective villages, if there are shortages of intact males. Young bucks and rams are sold before attaining the age of puberty. Buck shortage is observed in mixed flock site during monitoring period. Based on the case history assessment, problems associated with ewe and doe reproduction were identified. Major problems reported were abortions (earl and late), poor milk let down, poor conception and udder abnormalities.

**Table 4 -** Production system and housing system of the sheep

| Production system | Frequency | Percent |
|---|---|---|
| Extensive | 10 | 16.7 |
| Intensive | 2 | 3.3 |
| Semi intensive | 46 | 80.0 |
| **Total** | **60** | **100** |
| Type of housing system | | |
| Separate from family | 42 | 70.0 |
| Not Separate from family | 18 | 30.0 |
| **Total** | **60** | **100** |

**Table 5-** Types of feed and water source

| Type of feed | Frequency | Percentage |
|---|---|---|
| Natural grass | 25 | 41.7 |
| Straw with *atela* | 24 | 40.0 |
| Nug cake | 11 | 18.3 |
| **Total** | **60** | **100** |
| Source of water | | |
| River | 9 | 15.0 |
| Pond | 2 | 3.3 |
| Tape water | 49 | 81.7 |
| **Total** | **60** | **100** |

**Table 6 -** Major Constraint of Sheep production in the area

| Constraint of sheep production | Frequency | Percentage |
|---|---|---|
| Shortage of grass land | 20 | 33.3 |
| Disease and parasite | 14 | 23.3 |
| Shortage of water | 13 | 21.7 |
| Lack of extension service | 10 | 16.7 |
| Drought | 3 | 5.0 |
| **Total** | **60** | **100** |
| **Major of disease in the study area** | | |
| Fasciola | 17 | 28.3 |
| Internal parasite | 20 | 33.3 |
| Mastitis | 12 | 20.0 |
| Dystocia | 5 | 8.3 |
| External parasite | 6 | 10.0 |
| **Total** | **60** | **100** |
| **Method of sheep selling** | | |
| Based on live weight | 11 | 18.3 |
| By estimation | 46 | 76.7 |
| Both | 3 | 5.0 |
| **Total** | **60** | **100** |

## CONCLUSION

Small ruminants are a componental part of the crop-livestock mixed farming systems play a significant role in the livelihood of smallholders. They do have socio-economic and cultural Value other than their physical products; meat, milk, skin, manure. The result of the study average number of sheep per house hold was 5% ram 13.3% ewe and 1.7 % lamb. Mostly ewe& lamb (36.7%) ewe lamb &ram sheep are used for fattening and selling purpose to get profit and female (43.3%) for production purpose. (30.0%) of sheep rearing purpose is for both to get cash income and consumption. The other is other (43.3 %) that include for profit purpose.

Production system in the study area dominated by semi intensive system (80%). The major housing system in the study area is separate from family and other cattle (70%). Feed of the sheep Grass, straw with atela and nug cake cover 41.7% 40.0% and 18.3 respectively. Water sources of sheep are river (15%), pond (3.3%) and tape water (81.7%) from this majority of them use tape water (81.7%). The major disease in the study area is internal parasite" that was reported by 33.3 % of espondent. The others are facsiolosis (28.3%), mastitis (20.0%) and dystocia (8.3%).

Reproductive performance is a prerequisite for any successful livestock production programmers. Therefore the recommendation of the research would be; there is a need to design proper breed improvement program in order to enhance the utilization and productivity of local breed by designing modern housing system feeding, watering and increased of veterinary service is essential, the survey result indicated that the major problem were disease as a result there should be a veterinary service in appropriate time and place, the result should that there is land shortage, as a result the governmental and nongovernment organization should provide input, training and skill development programs to develop extensive production system in to semi-intensive and then intensive progressively.

### Conflict of interests

The authors have not declared any conflict of interests.

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