

# Small Ruminant Production and Constraints in Lanfuro Woreda, Southern Ethiopia

Yibrah Tekle\*, Mulugeta Ftiwi and Asmelash Tassew

Department of Animal Science, College of Agriculture and Natural Resources, Raya University, Ethiopia

## Research Article

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### \*For Correspondence

Yibrah Tekle, Department of Animal Science, College of Agriculture and Natural Resources, Raya University, Maichew, Ethiopia,  
Tel: +251912107718.

**E-mail:** goytomtekle@gmail.com

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### ABSTRACT

This study was conducted in Lanfuro woreda from February, 2017 to June, 2017 in Southern Ethiopia. The major objectives of this study were to assess the small ruminant production and health problems and to identify the constraints of small ruminant production. The study used questionnaire survey in 150 households in three kebeles that were reared sheep and goat. The results of this study showed that most of small ruminant owner were kept mainly for the purpose of income, manure and meat, 67.33%. The main supplementary feeds of the small ruminants were maize and atela (sediment) 29.33%, leaves 26% and maize 20.67%. The prominent problem was the diseases and feed shortage, 51% and it followed by water shortage 20.67%, diseases 20% and feed shortage 8%. The small ruminant production constraints faced in the study area were the existence of less market outlet (availability) 21.33%, absence of improved breed 20%, and low selling price 17.33%. The prevalent diseases encountered in the study area were bloating, pasteurolosis, lameness, nerve diseases, PPR and SGP. The prevalent disease of small ruminant was bloating, 29.33% and followed by pasteurolosis 14%. Abdominal swelling, 28% and nasal discharge, 15.33% were the higher recorded clinical symptoms. The respondents mainly used their main house for their sheep and goat, 77%. The households used the small ruminant milk primarily for their home consumption, 91.33% than for selling, 8.67%. The male sheep and goat slaughter was more common, 77.33% than female one, 2.67% during the festival, 90% and funeral ends/working days, 10%. The main reasons for selling of small ruminants in the study area were for buying fertilizer, education and health care for animal and human care expenditures. In conclusion, this study identified the prominent challenges for small ruminant production as diseases, feed and water shortage, less market availability and selling price, and absence of improved breed so as they influenced the production of small ruminant in the study area. Based on the conclusions, the production constraints and or problems should be planned and implemented properly to enhance the productivity; and it's be better to encourage to constructed the separated house of for the small ruminant so as it could reduce the disease transmission from animal to human and vice versa.

## INTRODUCTION

Small ruminants are integral parts of livestock keeping in Sub Saharan Africa (SSA) that are mainly kept for immediate cash sources, meat, milk wool, and manure and saving or risk distribution. Small ruminant also has various social and cultural functions in that vary among different cultures, socio-economic agro-ecologies and location. In tropical and sub-tropical Africa, Ethiopia has a large livestock than most countries in Africa. There are about 26.1 million and 21.7 million sheep and goats' population heads in Ethiopia respectively (CSA).

There are important components of livestock sectors and are sources of cash income and play a vital role as source of meat, milk, wool, for small holder keeper in different farming system and agro-ecological zones of the country [1-3]. They are source of foreign currency [4]. More ever do you to high fertility, short generation interval adaption in harsh environment and their ability to produce in limited feed resource [4].

Various factors that contribute for low productivity like health constraints, feed shortage both quality and quantity, for feeding and health management [5]. Other contributing factories also include low genetic potential issue [4] marketing and institutional problem and credit of facilities and other [6].

Similarity many small ruminant's genetic improvement programs in developing countries have not been very successful may be due to failure due to perceive the multi directional aspects of the problem for example implementing genetic improvement programmed without taking into consideration other vital needs of farms [7]. Production without access market is also problem for many livestock productions in tropical countries [5]. According to Delgado et al. [8] "Livestock revolution" can be expected to allow the rural poor farmer in developing countries to contribute the growing market. In Ethiopia small ruminant production lack of reliable marketing outlets that could be provide the full benefit of indigenous small ruminant resource to be captured.

To achieve these benefits, it is necessary to address the constraint with in different production systems. Thus, reconsidering government policies and how supportive they are small scale and pastoralist production is important [7] one outstanding aspect of the livestock revolution is implied change of production traditional subsistence to market oriented industry, livestock marketing a significant factor in the development of Ethiopian economy [8].

Small ruminants are backbone for national economy in our country particularly now days that consumers becoming to use their products. Farmers participate for long period of time but they have to know how to manage practiced like timing and feeding system, the husbandry system, watering and other practiced of management of small ruminant to improve management factors affecting lack of available market, proper housing, health service, equipment and institutional like education. Therefore, the objective of this study was to assess the small ruminant production and diseases problem, and to identify the major constraints of small ruminant production in Lanfuro woreda, Southern Ethiopia.

## **MATERIALS AND METHODS**

### **Study Area**

The was conducted in Lanfuro wereda in three kebeles in Silte zone SNNPRS, Lanfuro woreda is 211 km far from Addis Ababa, 160 km from Hawassa capital city of SNNPR regional state and 259 km from Dilla. The climate of Lanfuro woreda is suitable for livestock production it is geographical extends from 64.6 N, 38.4 E and it's high and low temperature 24.89 and 34 degree Celsius respectively. The average rain fall is 1000-1100 ml and the topography structure is high and low land (Regional Agricultural Bureau).

### **Study Animal**

Total 150 small ruminants' owners were selected and interviewed about the small ruminant production and their major constraints in the study area.

### **Study Design and Sampling Technique**

Across section study and purposive sampling method was conducted to asses' small ruminant production, management system and major constraints in the study area.

### **Sample Size Determination**

The total sample size this was 150 farmers who rear small ruminants. This size was determined by using Arsham [9].

$$N=0.5/SE^2$$

Where, N=sample size; SE=standard error.

Therefore, at 5% standard error of 95% confidence interval total of 150 respondents or farmers was involved in the study area.

### **Survey**

The semi structured of questionnaire was applied earlier in the study area and was modified. This questionnaire was including all the necessary information which helps to determine the objective of this study/research. Some of this information include in the questionnaire respondent age and educational back ground, using feeding, managements, breed, marketing system and the major problem in terms of feed, health, management and marketing.

### **Statistical Analysis**

The collected data was coded and entered in to Microsoft excel spread sheet and then analyzed using description statistic, frequency, percentage, tables and graphs.

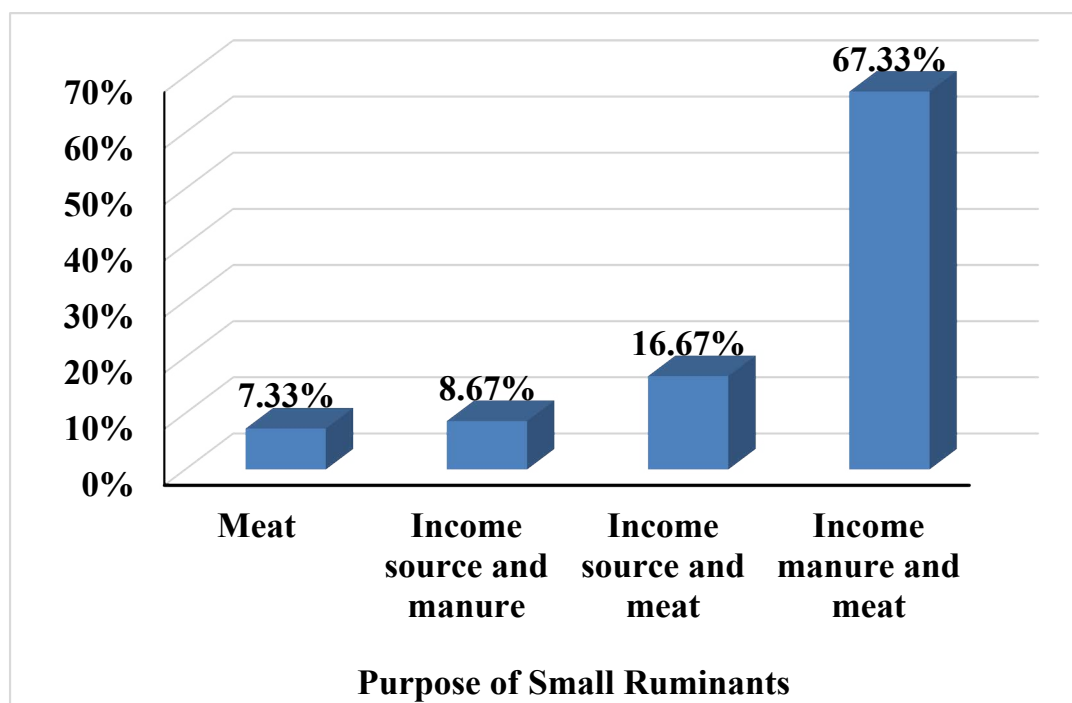
## RESULTS

### Purpose of Small Ruminants

Out of the total respondent 67.33% (101/150) were reported that sheep and goat were kept mainly for the purpose of income source, manure and meat, followed by income source and meat purpose 16.67% (25/150) (Table 1 and Figure 1).

**Table 1.** Elucidates the main purpose of sheep and goat in Lanfuro woreda.

| Small Ruminants Purpose  | Lanfuro Woreda (N=150) |                       |                      | Total              |
|--------------------------|------------------------|-----------------------|----------------------|--------------------|
|                          | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonte sostero (n=50) |                    |
| Meat                     | 6(11.76%)              | 3(6.12%)              | 2(4%)                | <b>11(7.33%)</b>   |
| Income source and manure | 3(5.88%)               | 5(10.20%)             | 5(10%)               | <b>13(8.67%)</b>   |
| Income source and meat   | 12(23.53%)             | 10(20.41%)            | 3(6%)                | <b>25(16.67%)</b>  |
| Income manure and meat   | 30(58.82%)             | 31(63.27%)            | 40(80%)              | <b>101(67.33%)</b> |
| <b>Total</b>             | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>      | <b>150(100%)</b>   |



**Figure 1.** Main purpose of the small ruminant in the study area.

### Supplementary Feed of Small Ruminant

This study indicated that the main supplementary feeds of the small ruminants in the study area were maize and atela (sediment) 29.33% (44/150), leaves 26% (39/150) and maize 20.67% (31/150) (Table 2 and Figure 2)

**Table 2.** Elucidates the main supplemented feed of sheep and goat in Lanfuro woreda.

| Feed Supplemented       | Lanfuro Woreda (N=150) |                       |                      | Total             |
|-------------------------|------------------------|-----------------------|----------------------|-------------------|
|                         | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonte sostero (n=50) |                   |
| Maize                   | 21(41.18%)             | 8(16.33%)             | 2(4%)                | <b>31(20.67%)</b> |
| Atela                   | 17(33.33%)             | 3(6.12%)              | 0(0%)                | <b>20(13.33%)</b> |
| Leaves                  | 11(21.57%)             | 13(26.53%)            | 15(30%)              | <b>39(26%)</b>    |
| Maize and atela         | 1(1.96%)               | 20(40.82%)            | 23(46%)              | <b>44(29.33%)</b> |
| Maize and leaves        | 1(1.96%)               | 2(4.08%)              | 9(18%)               | <b>12(8%)</b>     |
| Maize, atela and leaves | 0(0%)                  | 3(6.12%)              | 1(2%)                | <b>4(2.67%)</b>   |
| <b>Total</b>            | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>      | <b>150(100%)</b>  |

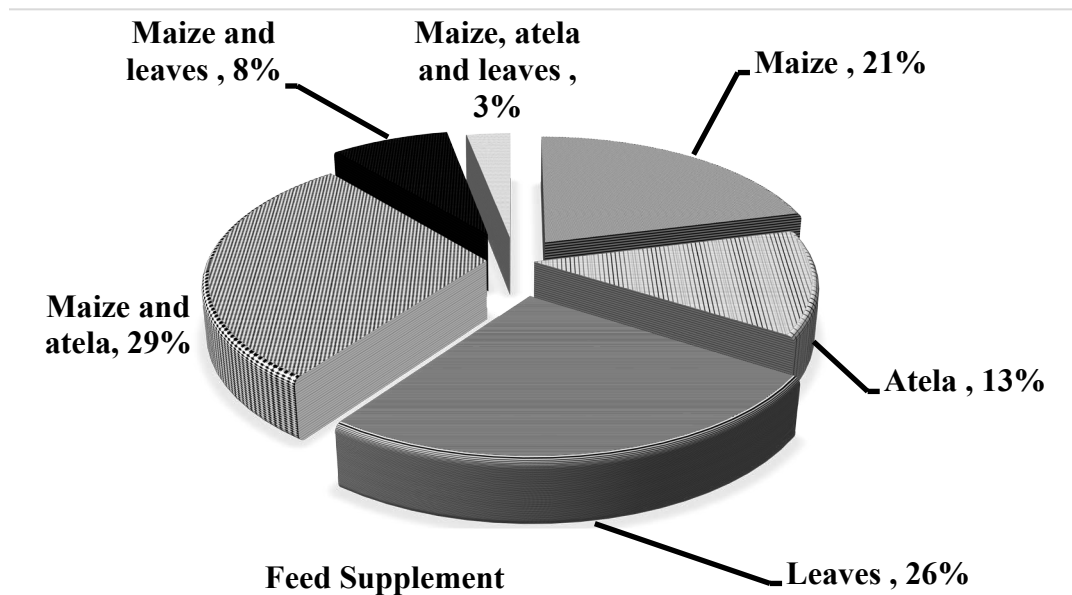


Figure 2. Types of feed supplements for small ruminants in the study area.

**Main Problems Small Ruminant**

Out of the total respondents the prominent problem was both the diseases and feed shortage, 51% (77/150) and it followed by water shortage 20.67% (31/150), diseases 20% (30/150) and feed shortage 8% (12/150) (Table 3 and Figure 3).

Table 3. Elucidates the main problems of sheep and goat production in lanfuro woreda.

| Main Problems of Production | Lanfura Woreda (N=150) |                       |                       | Total            |
|-----------------------------|------------------------|-----------------------|-----------------------|------------------|
|                             | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonted sostero (n=50) |                  |
| Diseases                    | 9(17.65%)              | 5(10.20%)             | 16(32%)               | 30(20%)          |
| Water shortage              | 0(0%)                  | 20(20.82%)            | 11(22%)               | 31(20.67%)       |
| Feed shortage               | 0(0%)                  | 6(12.24%)             | 6(12%)                | 12(8%)           |
| Diseases and feed shortage  | 42(82.35%)             | 18(36.73%)            | 17(34.17)             | 77(51.33%)       |
| <b>Total</b>                | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>       | <b>150(100%)</b> |

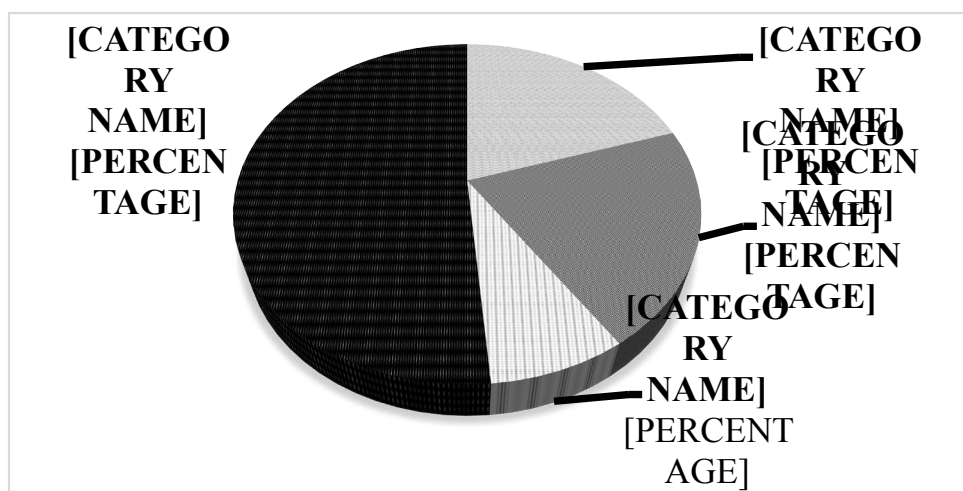


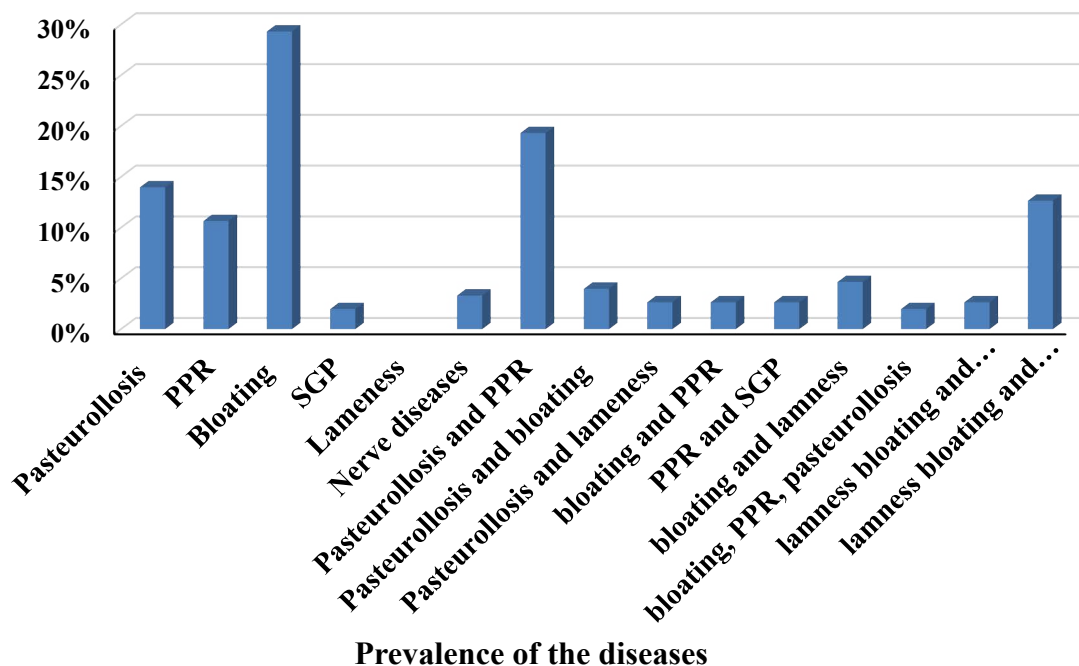
Figure 3. Main problem of the small ruminant production in the study area.

**Major Diseases of Small Ruminant**

Out of the total respondents that reported the small ruminant diseases, bloating was the principal one, 29.33% (44/150) and it followed by pasteurollosis 14% (21/150) (Table 4 and Figure 4).

**Table 4.** Elucidates the major diseases of sheep and goat according to the respondents interviewed in Lanforo woreda.

| Diseases                            | Lanfora Woreda (N=150) |                       |                      | Total             |
|-------------------------------------|------------------------|-----------------------|----------------------|-------------------|
|                                     | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonte sostero (n=50) |                   |
| Pasteurollosis                      | 2(3.92%)               | 9(18.37%)             | 10(20%)              | <b>21(14%)</b>    |
| PPR                                 | 14(27.45%)             | 2(4.08%)              | 0(0%)                | <b>16(10.67%)</b> |
| Bloating                            | 19(37.25%)             | 2(4.08%)              | 1(2%)                | <b>44(29.33%)</b> |
| SGP                                 | 0(0%)                  | 0(0%)                 | 3(6%)                | <b>3(2%)</b>      |
| Lameness                            | 1(1.96%)               | 3(6.12%)              | 1(1.96%)             | <b>5(3.33%)</b>   |
| Nerve diseases                      | 0(0%)                  | 1(1.96%)              | 13(26%)              | <b>14(9.33%)</b>  |
| Pasteurollosis and PPR              | 0(0%)                  | 3(6.12%)              | 3(6.12%)             | <b>6(4%)</b>      |
| Pasteurollosis and bloating         | 0(0%)                  | 1(2.04%)              | 3(6%)                | <b>4(2.67%)</b>   |
| Pasteurollosis and lameness         | 0(0%)                  | 1(2.04%)              | 3(6%)                | <b>4(2.67%)</b>   |
| bloating and PPR                    | 0(0%)                  | 1(2.04%)              | 3(6%)                | <b>4(2.67%)</b>   |
| PPR and SGP                         | 0(0%)                  | 2(4.08%)              | 5(10%)               | <b>7(4.67%)</b>   |
| bloating and lamness                | 0(0%)                  | 2(4.08%)              | 1(1.96%)             | <b>3(2%)</b>      |
| bloating, PPR, pasteurollosis       | 0(0%)                  | 0(0%)                 | 4(8%)                | <b>4(2.67%)</b>   |
| lamness bloating and pasteurollosis | 15(29.41%)             | 1(2.04%)              | 3(6%)                | <b>19(12.67%)</b> |
| <b>Total</b>                        | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>      | <b>150(100%)</b>  |



**Figure 4.** Major diseases prevalence according to the respondents interviewed.

**Major Constraints of Small Ruminant Production**

In the study area out of total respondent 56% (84/150) was reported in shortage of rainfall, followed by shortage of feed and rainfall, and range land 33.37% (56/150) and 6.67% (10/150) respectively (**Table 5**).

**Table 5.** Elucidates major constraints of sheep and goat in Lanforo woreda.

| Feed shortage                 | Lanfora Woreda (N=150) |                       |                      | Total            |
|-------------------------------|------------------------|-----------------------|----------------------|------------------|
|                               | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonte sostero (n=50) |                  |
| Rangeland shortage            | 4(7.84%)               | 3(6.12%)              | 3(6%)                | <b>10(6.67%)</b> |
| Rainfall shortage             | 43(84.31%)             | 31(63.27%)            | 10(20%)              | <b>84(56%)</b>   |
| Shortage of feed and rainfall | 4(7.84%)               | 15(30.61%)            | 37(74%)              | <b>56(37.33)</b> |
| <b>Total</b>                  | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>      | <b>150(100%)</b> |

### Major Clinical Signs in Sheep and Goat

Thus, out of the total respondents reported clinical signs 28% (43/150) was observed in swelling of abdomen and it followed by in nasal/eyes discharge, 15.33% (23/250) (Table 6).

Table 6. Elucidates clinical sign of sheep and goat in Lanfuro woreda.

| Clinical Signs  | Lanfura Woreda (N=150) |                       |                      | Total      |
|---|------------------------|-----------------------|----------------------|------------|
|   | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonte sostero (n=50) |            |
| Discharge from nasal/eyes                                     | 2(3.92)                | 9(18.37)              | 12(24%)              | 23(15.33%) |
| Diarrhea  | 14(27.45)              | 4(8.16)               | 0(0)                 | 18(12)     |
| Coughing  | 0(0)                   | 0(0)                  | 2(4)                 | 2(1.33)    |
| Skin lesion   | 0(0)                   | 0(0)                  | 3(6)                 | 3(2)       |
| Circling  | 1(1.96)                | 3(6.12)               | 1(2)                 | 5(3.33)    |
| Swelling of abdominal   | 19(37.25)              | 23(46.94)             | 1(2)                 | 43(28.67)  |
| Leg deformity   | 0(0)                   | 2(4.08)               | 0(0)                 | 2(1.33)    |
| Circling and swelling abdominal                               | 0(0)                   | 4(8.16)               | 5(10)                | 9(6)       |
| Discharge from nasal/eyes and abdominal swelling              | 0(0)                   | 0(0)                  | 6(12)                | 6(4)       |
| Diarrhea and discharge from nasal and eyes                    | 0(0)                   | 0(0)                  | 6(12)                | 6(4)       |
| Coughing, discharge from nasal/eye and diarrhea               | 0(0)                   | 1(2.04)               | 8(16)                | 9(6)       |
| Diarrhea, discharge and fever                                 | 0(0)                   | 0(0)                  | 7(14)                | 7(4.67)    |
| Leg deformity and abdominal swelling                          | 7(13.73)               | 3(6.12)               | 2(4)                 | 12(8)      |
| Deformity legs, abdominal swelling, discharge from nasal/eyes | 8(15.69)               | 0(0)                  | 3(6)                 | 11(7.33)   |
| Total   | 51(100%)               | 49(100%)              | 50(100%)             | 150(100%)  |

### Housing of Small Ruminant

Out of the total respondents, the majority were used their main house for those small ruminant, 77% (116/150) and followed by adjoin house 20% (30/150) and separated constructed house 2.67% (4/150) (Table 7).

Table 7. Elucidates housing system of sheep and goat in Lanfuro woreda.

| Housing        | Lanfura Woreda (N=150) |                       |                      | Total      |
|----------------|------------------------|-----------------------|----------------------|------------|
|                | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonte sostero (n=50) |            |
| Main house     | 41(80.39)              | 25(51.02)             | 50(100)              | 116(77.33) |
| Adjoin house   | 10(19.61)              | 20(40.82)             | 0(0)                 | 30(20)     |
| Separate house | 0(0)                   | 4(8.16)               | 0(0)                 | 4(2.67)    |
| Total          | 51(100%)               | 49(100%)              | 50(100%)             | 150(100%)  |

### Use of Small Ruminants Milk

About 91.33% (137/150) of the milk production of the small ruminants used for home consumption whereas the remained percentage they provided to market for selling, 8.67% (13/150) (Table 8).

Table 8. Elucidates the use of goat milk in Lanfuro woreda.

| Use of milk      | Lanfura Woreda (N=150) |                       |                      | Total      |
|------------------|------------------------|-----------------------|----------------------|------------|
|                  | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonte sostero (n=50) |            |
| Home consumption | 51(100)                | 47(95.92)             | 39(78)               | 137(91.33) |
| For sell         | 0(0)                   | 2(4.08)               | 11(22)               | 13(8.67)   |
| Total            | 51(100%)               | 49(100%)              | 50(100%)             | 150(100%)  |

### Sex Preference and Time for Slaughter

High number of respondents responded that the male sex of the sheep and goat was the highest preferred one for slaughter purpose, 77.33% (116/150), followed by both sex preference (equal weight preference in both sex), 20% (30/50) (Table 9). This slaughtering being conducted during the festival, 90% (135/150) than funeral ends/working days, 10% (15/15) (Table 10).



**Table 9.** Elucidates preference of sex for slaughter sheep and goat in Lanfuro woreda.

| Sex of the Slaughter Small Ruminants | Lanfura Woreda (N=150) |                       |                       | Total             |
|--------------------------------------|------------------------|-----------------------|-----------------------|-------------------|
|                                      | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonted sostero (n=50) |                   |
| Male                                 | 33(64.71)              | 38(77.55)             | 45(90)                | <b>116(77.33)</b> |
| Female                               | 1(1.96)                | 1(1.96)               | 2(4)                  | <b>4(2.67)</b>    |
| Both                                 | 17(33.33)              | 10(20.41)             | 3(6)                  | <b>30(20)</b>     |
| <b>Total</b>                         | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>       | <b>150(100%)</b>  |

**Table 10.** Elucidates slaughter time in sheep and goat in Lanfuro woreda.

| Time of Slaughter | Lanfura Woreda (N=150) |                       |                       | Total            |
|-------------------|------------------------|-----------------------|-----------------------|------------------|
|                   | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonted sostero (n=50) |                  |
| Festival          | 45(88.24)              | 40(81.63)             | 50(100)               | <b>135(90)</b>   |
| Funeral ends      | 6(11.76)               | 9(18.37)              | 0(0)                  | <b>15(10)</b>    |
| <b>Total</b>      | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>       | <b>150(100%)</b> |

### Reasons for Selling of Small Ruminant

Out of the total respondents that the higher response for the small ruminant selling reason was for fertilizer, education and health care expenditure, 36.67% (55/150), followed by the health care 26.67% (40) and fertilizer buying, 12% (18/150) (Table 11).

**Table 11.** Elucidates reason for sheep and goat in Lanfu wored.

| Reasons for Sell                              | Lanfura Woreda (N=150) |                       |                       | Total            |
|---|------------------------|-----------------------|-----------------------|------------------|
|   | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonted sostero (n=50) |                  |
| Fertilizer                                    | 13(25.49)              | 4(8.16)               | 1(2)                  | <b>18(12)</b>    |
| Education                                     | 6(11.76)               | 3(6.12)               | 1(2)                  | <b>10(6.67)</b>  |
| Health for animal/human                       | 22(43.14)              | 17(22)                | 1(2)                  | <b>40(26.67)</b> |
| Fertilizer and education                      | 3(5.88)                | 3(6.12)               | 2(4)                  | <b>8(5.33)</b>   |
| Fertilizer and health for animal/human        | 0(0)                   | 0(0)                  | 5(10)                 | <b>5(3.33)</b>   |
| Education and health for animal/human         | 0(0)                   | 5(10.20)              | 9(18)                 | <b>14(9.33)</b>  |
| Fertilizer, education and health animal/human | 7(13.73)               | 17(34.69)             | 31(62)                | <b>55(36.67)</b> |
| <b>Total</b>                                  | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>       | <b>150(100%)</b> |

### Clients of Small Ruminant Purchasers

The main purchasers of the respondents' sheep and goat were merchants and their own farmers. Out of these the major purchaser was merchants, accounts for about 53.33% (80/150) out of the total, followed by both merchants and farmers' buyers was 24.67% (37/150). And their farmers also accounted for about 22% (33/150) (Table 12).

**Table 12.** Elucidates selling in sheep and goat in Lanfuro wored.

| Purchasers            | Lanfuro Woreda(N=150) |                       |                       | Total            |
|-----------------------|-----------------------|-----------------------|-----------------------|------------------|
|                       | Meja Tora (n=51)      | Warisha shanka (n=49) | Wonted sostero (n=50) |                  |
| Merchants             | 23(45.10)             | 20(40.82)             | 37(74)                | <b>80(53.33)</b> |
| Farmers               | 21(41.18)             | 11(22.45)             | 1(2)                  | <b>33(22)</b>    |
| Farmers and merchants | 7(13.73)              | 18(36.73)             | 12(24)                | <b>37(24.67)</b> |
| <b>Total</b>          | <b>51(100%)</b>       | <b>49(100%)</b>       | <b>50(100%)</b>       | <b>150(100%)</b> |

### Major problems of small ruminant production

Out of the total respondents, 32% (48/150) were reported that the major problem of the sheep and goat production was less market outlet and price problem, 32% (48/150) and followed by less market outlet/availability, 21.33% (32/150) and absence of improved breed, 20% (30/150) and low price, 17% (26/150) (Table 13).

**Table 13.** Reveals the major problems of sheep and goat production in Lanfora woreda.

| Constraints of Small Ruminant Production | Lanfora Woreda (N=150) |                       |                       | Total            |
|--|------------------------|-----------------------|-----------------------|------------------|
|  | Meja Tora (n=51)       | Warisha shanka (n=49) | Wonted sostero (n=50) |                  |
| Less market outlet                       | 0(0)                   | 4(8.16)               | 28(56)                | <b>32(21.33)</b> |
| Absence of improved breed                | 23(45.1)               | 2(4.08)               | 5(10)                 | <b>30(20)</b>    |
| Price problem                            | 23(45.1)               | 2(4.08)               | 1(2)                  | <b>26(17.33)</b> |
| less market outlet and selected breed    | 0(0)                   | 7(14.29)              | 7(14)                 | <b>14(9.33)</b>  |
| market outlet less and price problem     | 5(9.8)                 | 34(69.39)             | 9(18)                 | <b>48(32)</b>    |
| <b>Total</b>                             | <b>51(100%)</b>        | <b>49(100%)</b>       | <b>50(100%)</b>       | <b>150(100%)</b> |

## DISCUSSION

In this study area, 67% respondents were kept sheep and goat mainly for income source, manure and meat, 16.67% for income source and meat and for meat was 7.33%. This study was similar with the report of Kosgey in Kenyan and ILCA. The report of Kosgey reported that sheep and goat kept mainly manure, meat, milk and income source.

Out of the total respondent beside to grass the majority used feed supplement for their small ruminant production like maize, eaves and sediments/atela. The highest feed supplement was maize and atela, 29.33% and 29.33% were maize and leaves. This finding was agreed with the research finding of Tsedeke who reported feed sources for sheep and goat is mainly on leaves.

The main problem of sheep and goat production in the study area were surveyed as diseases, water shortage, feed shortage, both of the diseases and feed shortage. These problems could affect the productivity, meat quality and quantity of sheep and goat. Out of the total respondents responded that 51% of them were affected the small ruminant production by both diseases and shortage of feed, whereas the remained percentage were for the water shortage, 21%, disease problem 20% and feed shortage 8%. This finding was agreed with the research reports of Sisay<sup>[10]</sup>, Endashaw<sup>[2]</sup> and Tsedeke that diseases, feed shortage and water shortage were diminishing the productivity of sheep and goat.

The prevalent diseases encountered in the study area, based on the interview of respondents, were bloating, pasteurolosis, lameness, nerve diseases, PPR and SGP. These diseases were declined the small ruminant productivity, skin quality, meat and milk in the community, as the respondents' report. According to this research report the principal small ruminant disease was bloating, 29.33% was the prevalent disease and followed by pasteurolosis 14%. The diseases were affected the benefit of the respondents either by direct death or indirect diminished the sheep and goat production performance. This result agreed with Solomon et al.<sup>[11]</sup>.

The clinical signs that encountered in the study area small ruminant diseases were abdominal swelling, nasal/eyes discharge, diarrhea, leg deformity, circling, coughing and fever. Abdominal swelling, 28% and nasal discharge, 15.33% were the higher recorded clinical symptoms. The circling clinical, coughing and nasal discharge signs reported here might be related with the nerve and pasteurolosis disease which faced in this study area. And also the skin lesions and diarrhea recorded here could be interrelated with SGP disease (sheep and goat pox). Thus, the clinical signs being recorded in this study, might be confirmed the existence of those diseases which reported by the respondents. This agreed with report of Markos<sup>[1]</sup> and Tsedeke who report diseases it shows clinical sign diminishes productivity of sheep and goat.

Out of the total respondents, the majority were used their main house for those small ruminant, 77% (116/150) and followed by adjoin house 20% (30/150) and separated constructed house 2.67% (4/150). The reasons for those respondents' used the main house together with their sheep and goats were to protect from theft, predator and bad weather condition. This finding agreed with the report of Tsedeke who reported 89% in Alaba, animals kept in main house together for the above reasons mentioned.

The most respondents reported that the small ruminant milk mainly used for home consumption, 91.33% (137/150), it agreed with Workneh<sup>[12]</sup>. But few of them used it for selling, 8.67% (13/150), for the reason of expenditure coverage to education, home consumption commodities and fertilizer buying. This agreed with report of Kosgey in Kenyan.

The most respondents were slaughtered the male sheep and goat, 77.33% than female sheep and goat, 2.67% (4/150); this preference was similar with Kosgey. This report might be due to the cultural value they preferred male for slaughtered. This slaughtering being conducted during the festival, 90% (135/150) than funeral ends/working days, 10% (15/15) in the study area.

The main reasons for selling of small ruminants in the study area were fertilizer, education and health care expenditures. Out of the total respondents, for fertilizer, education and health care expenditure selling reason was higher, 36.67% (55/150), followed by the health care for animal and human, 26.67% (40) and fertilizer buying for agricultural input, 12% (18/150). Getahun and Kosgey also agreed with these selling reasons. The main purchasers of the respondents' sheep and goat were merchants and own farmers. Out of these the major purchaser was merchants, accounts for about 53.33% out of the total, followed by both merchants and farmers' buyers were 24.67%. And their farmers also accounted for about 22%.

This research also identified the major problems of small ruminant production in the study area which were the existence



of less market outlet (availability), absence of improved breed, and low selling price. This agreed with reports of Aklilu et al. [13], Endashaw [2], Markos [1], Tsedeke, Wilson and Zelalem [14]. The reasons could be the presence of poor infrastructure and financial facility, the presence of boarder, existence of undeveloped market system and low number of cooperatives [15-22].

## **CONCLUSION AND RECOMMENDATIONS**

This study indicated that the main purposes of the small ruminant in the study area were for income source, manure, meat and milk. And also by the households sold their small ruminants and their product in order to buy fertilizer for their agriculture, to serve for their family educational expenditures, to cover their animal and family health care expenditure. The study identified that all the respondents being used the supplementary feed, like leaves, maize, sediments (atela) for their small ruminant in addition to pasture grazing/browsing. The identified production problems, like diseases (health problem), feed and water shortage, and range land shortage, less market availability, less selling price, and absence of improved breed that reduce the productivity of sheep and goat in the study area. Also showed the opportunities of the zoonotic diseases circulating within the human and animal since the majority of the respondents reported revealed the small ruminant live in the main house of the family together.

Based up on the above conclusions, the following points recommended:

- The study area needs to develop the strategies of entering and enhancing the available local breed by using the improved breed of sheep and goat.
- The agricultural agency of the woreda should be planned and implemented to the temporary and sustainable solutions for the shortage of water and feed in the small ruminant producers.
- establishing cooperatives that have a linkage with the others central markets could be relieved the market outlet and selling price problems of the small ruminant producers.

Awareness should be raised up on the zoonotic diseases way of transmissions that related to living together animals and humans.

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