Introduction

Ethiopia has above 30 million heads of sheep [1]. However, sheep productivity is very low. The average carcass yield of local small ruminant was 8kg which was below the East African (11kg) and the world (12kg) average [2]. In Ethiopia, the current per capita consumption of meat is 13.9kg/year, being lower than the African and the world per capita averages, which are 27kg/year and 100kg/year, respectively [3].

In Ethiopia, livestock fattening practices by farmers mostly lay on the natural pasture [4]. Traditional fattening practices might not take in to account the nutrient requirement of animals, the level of feeding being either above or below the animal requirements. In such conditions, livestock production mainly depends on increase of animal numbers rather than productivity per animals. Production increment through increase of sheep numbers only may not meet the meat demand of growing population [5]. The productivity of animals could be increased through improving daily body weight gain of the animals.

Animal fattening is an opportunity for employment and is a means of income generation for the poor, especially the landless and widowed women [6]. Rams fattening is an efficient income-generating option for small-scale farmers.
and is a source of family employment. Ethiopian female exhibited better skills in sheep husbandry compared to male household [7]. However, they are unable to realize substantial benefits due to their low level of business experience, access to technology and participation in local markets. Female are confronted by heavy domestic workload and subsequently face time constraints as well as limited access to resources such as land, credit and production inputs.

Currently, youth employment is also a pressing issue in Ethiopia where almost two-thirds of the population is younger than 25 years [8]. High level of youth unemployment creates critical socio-economic problems in a country. Rural youth have less access to agricultural land since it is occupied by their family. Hence, there is a need to demonstrate agricultural technologies that need less land and increase productivity as well as income.

However, sheep fattening is one of the options that rural youth and women confronted with the mentioned challenges can improve their incomes. As fattening technologies require less land and increase productivity as well as income, demonstration of such agricultural technologies is important. Studies also indicate that rams fattening is a relatively easy and profitable system of animals rearing to reduce poverty, unemployment and generate income for the rural people [9]. In line with this idea, growth performance evaluation experiments were done at Adami Tulu Agriculture Research Centre using different dietary rations on Arsi-Bale sheep rams in the process of developing sheep fattening technologies. Rams fed wheat bran and cotton seed cakes gained 104 grams daily weight gain [10]. Hence, this study was designed to demonstrate the concentrate based yearling rams fattening selected districts of West Arsi Zone.

Objective

- To demonstrate concentrate based sheep fattening technology to attain export market weight demand at on-farm level
- To evaluate financial profitability of concentrate based sheep fattening at on-farm level
- To increase youth and women income though sheep fattening at on-farm level conditions.

Materials and methods

Description of the area

The demonstration was conducted in Dodola and Kofele district of West Arsi Zone. Sheep fattening history, access to road and market and water availability were some of the criteria used during kebele selection. Accordingly, Keta-Bereda and Wabe Gefersa kebeles were purposively selected in collaboration with livestock experts from Dodola and Kofele districts, respectively. Keta-Bereda is located at 90 km and Wabe-Gefersa at 56 km East of Shashamane towards Bale-Robe town; Oromia regional state, Ethiopia.

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development gents, livestock experts and other who participated on training and mini field day. A total of 20 male and 18 females involved directly in sheep fattening whereas a total of 86 individuals attended the mini on the mini field day.

Sheep house construction

Rams house was constructed from local wood (bamboo and eucalyptus). Its roof was covered by plastic material to protect the animals from sun and rainfall. Feeding troughs were constructed from eucalyptus wood. The troughs were set in the feeding house at 50cm above the ground and attached to the wall. The door of the house was made from iron sheet.

Animal purchase and feeding

A total of seventy yearling rams were purchased from the surrounding markets. The purchasing price of animal was determined by observation and negotiation with seller. Age of rams was determined by dentition techniques. The rams were then treated against internal and external parasites before commencement of the feeding. The animals were supplied with their daily dietary ration (3% of their body weight); half in the morning and the remaining half in the afternoon. The dietary ration was formulated from wheat bran and cotton seed cake. The total ration was grazing +65% wheat brain +35% cotton seed cake. One kilogram salt was mixed in 100kg dietary ration. The total ration was grazing +65% wheat brain +35% cotton seed cake. One kilogram salt was mixed in 100kg dietary ration. The total ration was grazing +65% wheat brain +35% cotton seed cake. One kilogram salt was mixed in 100kg dietary ration. The total ration was grazing +65% wheat brain +35% cotton seed cake. 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Table 3: Growth performance of rams at different location.

<table>
<thead>
<tr>
<th>Biological parameter</th>
<th>Dodola (keta Bereda)</th>
<th>Kofele (Wabe-Gefersa)</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial body weight</td>
<td>19.2±0.34</td>
<td>19.7±0.29</td>
<td>19.5±0.29</td>
</tr>
<tr>
<td>Final body weight</td>
<td>27.1±0.43</td>
<td>27.6±0.41</td>
<td>27.4±0.41</td>
</tr>
<tr>
<td>Total weight gain</td>
<td>7.8±0.31</td>
<td>7.9±0.26</td>
<td>7.9±0.26</td>
</tr>
<tr>
<td>Daily weight gain</td>
<td>105.3±4.09</td>
<td>96.±6.28</td>
<td>100.3±2.8</td>
</tr>
</tbody>
</table>

Keta-Bereda kebele located at Dodola while Wabe-Gefersa kebele at Kofele district.

Table 4: Economic return at different location.

<table>
<thead>
<tr>
<th>List of Items (ETB)</th>
<th>Dodola(Keta-Bereda)</th>
<th>Kofele(Wabe-Gefersa)</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed cost /ram</td>
<td>360.50</td>
<td>337.40</td>
<td>348.95</td>
</tr>
<tr>
<td>Labor cost /ram</td>
<td>87.50</td>
<td>65.61</td>
<td>76.55</td>
</tr>
<tr>
<td>Veterinary cost /ram</td>
<td>50.00</td>
<td>50.00</td>
<td>50.00</td>
</tr>
<tr>
<td>Purchasing price /ram</td>
<td>950.00</td>
<td>1000.00</td>
<td>975.00</td>
</tr>
<tr>
<td>Transport cost/ram</td>
<td>15.10</td>
<td>14.80</td>
<td>14.95</td>
</tr>
<tr>
<td>Feeding trough cost /ram</td>
<td>72.00</td>
<td>78.80</td>
<td>75.40</td>
</tr>
<tr>
<td>Total cost/ram</td>
<td>1535.10</td>
<td>1612.37</td>
<td>1573.73</td>
</tr>
<tr>
<td>Total revenue /ram</td>
<td>1866.66</td>
<td>1825.00</td>
<td>1845.83</td>
</tr>
<tr>
<td>Gross margin/ram</td>
<td>336.66</td>
<td>283.19</td>
<td>309.92</td>
</tr>
</tbody>
</table>

ETB: Ethiopian Birr; Keta-Bereda kebele located at Dodola while Wabe-Gefersa kebele at Kofele district.

Conclusion and recommendation

A total of seventy Arsi-Bale sheep were kept on feeding for 75 days at on-farm level. The demonstration result indicated that the daily weight gain of the animals obtained at the end of the fattening period was similar to the on-station result. The participant youth and women were easily managing the sheep as well as the fattening technology in the way they are told by guiding researchers. As a result, the youth and women were benefited a lot from fattening exercise. The sheep fattening demonstrated showed that its one option to create job opportunity for rural landless and it could be an alternative source of income for the community. Therefore, further scaling up of this fattening technology is recommended to reach rural youth and women in the process of creating employment opportunity.

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References


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