



Knowledge and exploitation of small ruminant grading and pricing systems among Somaliland livestock producers



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Knowledge and exploitation of small ruminant grading and pricing systems among Somaliland livestock producers

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Disclaimer

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Abstract

This study sought to determine the level of awareness of the informal indigenous livestock grading and pricing system among producers and the exploitation of this knowledge to increase market participation and realise better prices and returns for their animals. Data was collected from 144 small ruminant producers in 3 livelihood zones (West Golis pastoral, Togdheer agro-pastoral and Hawd pastoral regions) in the northern Togdheer region using a structured questionnaire. Descriptive statistics and econometric methods were used in the analysis of data.

Results confirmed the importance of small ruminants as sources of income among livestock producers in Somaliland. On average, a household kept 53 sheep and goats with most of the producers (79-85%) having sold some animals (mean=10) during the preceding 12 months. It was also established that producers were generally well versed with the grading and pricing system except for the very fine details. However, this knowledge did not have significant effect on level of market participation, but rather, other supply influencing factors like the number of animals kept by the household, gender of sales decision maker, age of household head and livelihood zone in which the household resided significantly influenced household annual small ruminants sales volumes.

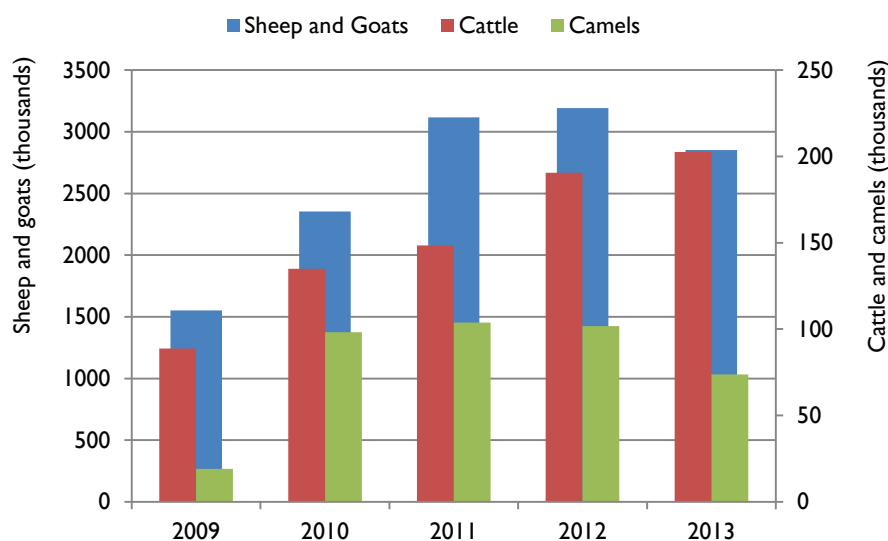
Despite level of awareness of grading and pricing having no significant effect on the absolute annual household sales volumes due to other adjunct supply constraints, producers tended to avail more of the superior quality grades for sale. For example, Grades I and II of small ruminants accounted for the largest proportions of animals sold (40% and 29%, respectively) with inferior quality grades (grade III and the local grade) accounting for only 15% and 17% respectively. Furthermore, results of an Ordinary Least Squares (OLS) regression showed that supply of higher grade animals had a positive effect on prices received. In addition, number of animals sold and involvement in other economic activities besides livestock production positively affected the level of prices received by producers. Although a significant number of producers (39%) said that they deliberately fatten animals before sale, the strategy employed simply involved grazing of animals in communal land during the rainy season.

Sheep and goats producers in Somalia face formidable constraints of drought and the attendant lack of feed and water for livestock, and also animal health issues. This provides a justification for development agencies and research organisations to continue working to address these problems.

Background

Livestock is the most important economic sector in Somaliland. It employs over 70% of the population, contributes to about 60% of GDP and 85% of foreign export earnings (MoP, 2011). At household level, over 65% of the Somali population derive their livelihoods from the livestock sector (FAO, 2012). Revenue from livestock sales is used to purchase food and other necessities thus impacting directly on household food security and poverty. Sheep and goats are the most important species of livestock reared and marketed in Somaliland (Figure 1). In 2012, over 3 million sheep and goats worth over 200 million USD were traded and exported from the port of Barbera (Somaliland Chamber of Commerce Industries and Agriculture (SLCCIA, 2013). The main importing countries of Somaliland livestock are in decreasing order of importance: the Kingdom of Saudi Arabia (KSA), Yemen, Oman, Egypt and the United Arab Emirates (SLCCIA, 2013).

Figure 1. Trends in livestock exports from Somaliland.



Source: SLCCIA, 2013

Given the importance of livestock production and marketing to the livelihoods of the Somaliland people, the government in partnership with the private sector and development partners has been working to enhance access to livestock export markets by the Somali livestock producers and other marketing intermediaries through improved access to marketing support services. Two key developments have contributed towards this robust growth in exports of sheep and goats. First, embracing of a livestock certification system and setting up of quarantine stations¹ at the tail end of the market chain in Somaliland has enhanced the confidence of importers in the safety and quality of livestock of Somaliland origin (Khadijah and Kabue, 2012). Prior to September 2009, exports to the Kingdom of Saudi

¹ There are three quarantine stations in Somaliland. The first station started operations in September 2009, the second a year later in October 2010, and the third in 2012. The first station is a joint public-private partnership, while the other two are private. They all have a joint holding capacity of above 2 million sheep and goats.

Arabia (KSA) transited through the livestock quarantine facilities at the port of Djibouti. This not only increased the marketing costs for Somaliland traders, but also constrained export volumes to the handling capacity of the facilities at the port of Djibouti. Second, there have been robust investments in infrastructures supporting animal welfare and access to market information. Some of the animal welfare facilitating infrastructures include loading and unloading ramps; watering points, livestock shades and modern vaccination pens that have been put up in key district and regional markets across the country easing procurement of livestock from primary markets to ports of exit. On the other hand, the Somaliland Chamber of Commerce and Industries has set up an information system through which market actors can access grade-segregated price data to enable them make profitable sale or buy decisions.

The design and implementation of such trade augmenting interventions has often been preceded by diagnostic studies that have generated useful and actionable information on the Somali livestock industry. Example of such studies include Negassa et al. (2008), Mugunieri et al. (2012) and Negassa et al. (2012) which have offered detailed analyses of the value chains including main actors involved in the animal trade (exporters, agents of exporters, small scale traders, brokers), service providers, institutional conditions under which the trade take place (grading and pricing of animals², terms of trade, and trade governing institutions), costs and margins accruing to various actors, and the flow of information on animal quality and prices among marketing intermediaries from primary to terminal markets in Somaliland and Somalia. These studies were useful in identifying markets for siting of animal welfare enhancing infrastructures and in setting up of the market information system.

Although appreciable amount of empirical information exists on Somali livestock export trade, a complete picture is still lacking due to a failure by the past value chain studies including those by Terra Nuova and ILRI to include livestock producers in their analyses. This is despite the importance of producers in the value chain both in terms of numbers and also the role they perform. Consequently, the aim of the current study is to supplement the preceding studies by investigating producers' knowledge of the grading and pricing system, and how this knowledge is exploited to influence market participation and generate better returns.

² On the basis of an indigenous livestock grading and pricing system used in Somalia, three grades of cattle, sheep and goats (i.e. I, II and III) and two grades of camels (i.e. I and II) are exported. The grading of animals is based on levels of a number of important traits: age (adults v/s young), conformation (excellent, good, and fair), body condition (fat, normal, and thin), and sex (only male animals are exported). Grade I represent the highest quality animals and these fetch the best price. Lower grades are discounted.

Problem statement

Enhanced market participation by livestock producers offers great potential for improving the livelihoods of huge numbers of households in Sub-Saharan Africa. In Somalia, past livestock value chain studies by ILRI and Terra Nuova (Negassa et al., 2008; Mugunieri et al., 2012; Negassa et al., 2012) have yielded useful information that has informed interventions aimed at enhancing access to export markets. A notable shortcoming of these studies, however, is that they failed to include producers in their analysis. For this reason not much is known about the awareness of the producers of the grading and pricing system for livestock that is practiced along the market chain and whether this knowledge is effectively exploited for better household returns. This continues to exist despite the importance of livestock producers in the value chain both in terms of numbers and also the role they perform. This study aims to fill this gap. The study is motivated by the realization that producers lack of appropriate knowledge on grading and pricing of livestock may in itself not only act as a barrier to effective participation in livestock markets but also limit returns realized while participating in these markets.

Practitioners in agricultural research and development generally concede that incorporating gender in their work enhances impact on poverty reduction. This is because in many poor countries women not only form a large proportion of the poor but also contribute significantly in agricultural activities including livestock production and marketing. Available evidence suggests that Somalia is no exception. For example FSNAU (2012), reports that women and girls in Somalia perform an important role in sheep and goats production including ownership. A study by Minette (2011) confirms that women also play an important role in marketing of livestock and livestock products. Given this rather strong involvement of women in small ruminant activities in Somalia, ignoring them may undermine the viability of recommendations from this study in poverty reduction. Consequently, the study applies a gender lens in its analysis of awareness of grading and pricing system, and the extent to which this knowledge is exploited to enhance market participation as well as increase household returns. The gender focus is in line with a growing trend in many research studies conducted by ILRI.

Study objective and research questions

Study objective

This study sought to determine the level of awareness of the informal indigenous livestock grading and pricing system among producers of small ruminants in Somaliland and the exploitation of this knowledge to increase market participation and realise better prices and returns for their animals.

Research questions

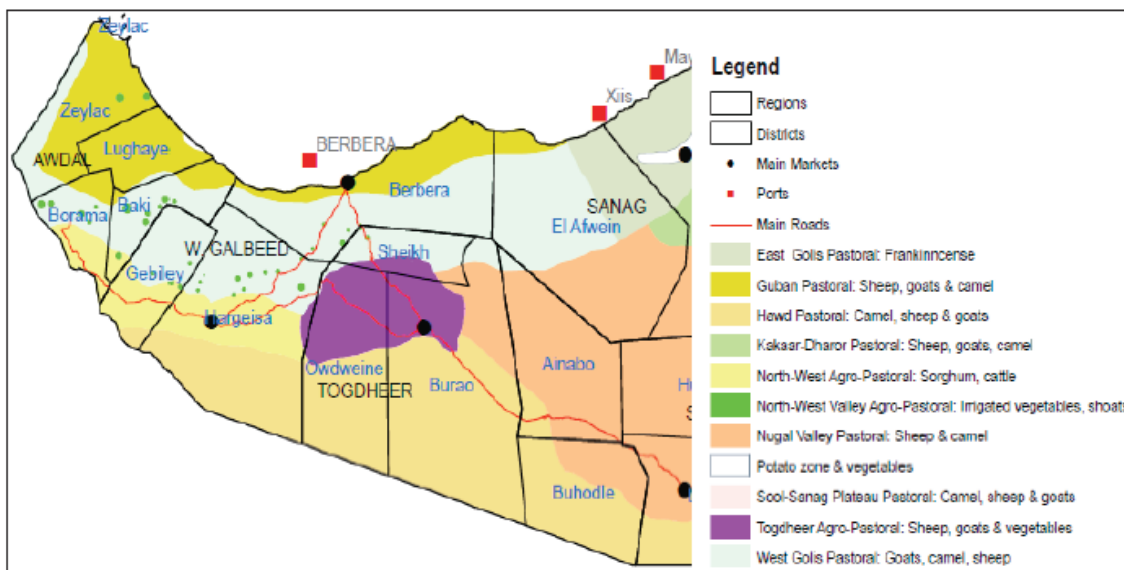
- What is the level of awareness of the indigenous grading system among men and women livestock producers, and what challenges does this grading system present to them?
- Are there any deliberate attempts by livestock keepers to exploit the indigenous grading system to make higher profits and reinforce their market participation?
- To what extent are livestock keepers aware of demand seasonality and price fluctuations, and which marketing strategies do they follow during these periods?
- From what sources do livestock keepers get the information on grades, prices and also supply and demand of animals?

Methodology

Study area

The target population was the pastoral and agro-pastoral producers keeping sheep and goats in Somaliland. The study area covered three districts namely Burco/Burao, Owdweyne and Sheikh traversing three livelihood zones. These livelihood zones included (i) West Golis pastoral zone where goats, camels, and sheep are the main species of livestock kept, (ii) Togdheer agro-pastoral zone where rearing of sheep, goats and also vegetable production are practiced, and (iii) Hawd sheep and goats pastoral zone (Figure 2).

Figure 2. Study area and livelihood zones covered.



Source: FSNAU, 2011

Sampling

The sampling strategy applied during this study was informed by the observed common layout of human dwellings in Somali communities. Essentially in Somaliland the demarcation of settlements (which are essentially villages) is such that each and every household belongs to a settlement. In the rural areas, the dwellings are put up close to one another to form a settlement. Likewise in urban areas, neighbourhoods surrounding the towns (like Burao or Sheikh) are demarcated into settlements. In nomadic communities, when households completely lose their livestock possibly due to drought or disease (pastoral drop-outs) they migrate to settlements surrounding urban areas and derive their livelihoods from supplying labour and on humanitarian assistance. But many urban dwellers also keep livestock including those that keep a few heads in their urban dwellings (mostly sheep and goats for milk). Other urban households have large herds of stock in the rural areas, perhaps under the care of extended family or hired labour.

Settlements in each livelihood zone were categorised into: (i) those located close to the market (within a 20km radius) and; (ii) those located far from the market (20km to 40km away from the market). Two settlements were randomly selected from each category to give a total of 12 settlements. A list of households that kept sheep and goats in each sampled settlement was prepared with the help of local leaders. For a selected settlement with more than 60 households³, 12 households were randomly selected plus an additional 6 'spare' households. If a selected settlement had less than 60 households, it was combined with the next closest settlement(s), such that the total number of households in the settlement cluster exceeded 60. Subsequently, 12 households were randomly selected plus an additional 6 'spare' households from the settlement cluster. Table 1 presents a breakdown of the surveyed households and settlements in the 3 livelihood zones.

A semi structured pre-tested questionnaire was administered on the most senior male and/or female in a total of 144 households in 12 settlements. If a sample household was not willing to be interviewed, it was dropped and replaced with a spare household. However, if a household did not contain a suitable male or female, for example de-facto female or male headed household, then the other sex was interviewed.

Data collection and analysis

Data collected was guided by the research questions. This included social economic characteristics of the household, numbers of animals owned, awareness of the indigenous grading system used in the marketing of livestock in Somaliland, marketing of sheep and goats, strategies employed to ensure higher profitability in the sheep and goats enterprise and challenges faced by livestock producers.

Table 1. A breakdown of the surveyed households during the formal survey

Livelihood zones	Settlements	Households
Togdheer Agropastoral : Vegetables; sheep and goats	Close to market 1	12
	Close to market 2	12
	Far from market 1	12
	Far from market 2	12
West Golis Pastoral : Sheep, goats & camels	Close to market 1	12
	Close to market 2	12
	Far from market 1	12
	Far from market 2	12
Hawd Pastoral : Sheep, goats & camels	Close to market 1	12
	Close to market 2	12
	Far from market 1	12
	Far from market 2	12
Total 3 Livelihood zones	Total 12 Settlements	Total 144 Households

The data was entered into an MS Access data base and later analysed using the STATA computer package. Descriptive statistics (means and frequencies) were used to evaluate the level of awareness of the grading system and also to investigate whether the producers made any deliberate efforts to exploit the grading system for higher returns. An OLS model was estimated to investigate the influence of quality of animals supplied on level of price received by producers. In addition, a Heckman selection model was used to evaluate the relationship between farmers' awareness of the grading and pricing system and market participation.

³ A household was defined as a group of people living in the same dwelling space usually, but not exclusively, kin related who eat meals together and pool some of their resources (such as land, livestock etc.) together.

Modeling the effect of quality animals sold on prices received

The OLS model used to analyze the effect of quality of animals sold and other factors on levels of price received was specified as follows:

$$Y_i = \beta X_i + e_i \quad (1)$$

Where:

Y_i : weighted price received per animal sold by the i^{th} producer. The weighted price was computed by dividing the total revenue received from sale of sheep and goats on the number of animals sold.

X_i : $K \times N$ matrix of explanatory variables including proportion of high quality animals (Grades I & II) less proportion of lower quality animals (grades III & local quality grade) in the flocks of animals sold, age of household head, main occupation of the household head (1=livestock keeping; 0=otherwise), gender of household head, gender of sale decision maker, number of sheep and goats sold, number of various livestock kept, and study site.

e_i : vector of unobservable random/error term which is normally distributed with mean=0 and variance= σ^2

Modeling the effect of knowledge on livestock grading and other factors on market participation

In line with growing trend in market participation studies, this study used a double-hurdle model to explore the effect of producers' awareness of the livestock grading system on market participation. Only "animal sales" was used as an indicator of market participation while purchases were disregarded as buying was rather scarce in the data set. Market participation measured as number of animals sold has a censored distribution⁴ and involves two main decisions, that is, (i) whether or not to participate in the market and (ii) how much to sell conditional on having decided to participate in the market. Where these two decisions are made sequentially as has been found to be the case among Eastern African pastoralists (Bellemare and Barrett, 2005), use of a Heckman selection model (Heckman, 1979) rather than an ordinary Tobit model to evaluate factors influencing market participation is more appropriate as the latter could result in biased parameter estimates.

The current study therefore employed the Heckman (1979) two stage procedure to perform the analysis of market participation by sheep and goats producers in Somaliland. In the first stage, a Probit model was used to model the decision by livestock producers' on whether or not to participate in markets. Denoting market participation as a dummy variable, Z_i which takes a value of 1 if the i^{th} producer decides to participate and 0 otherwise, the Probit model was formulated as follows:

$$\begin{aligned} Z_i &= 1 \quad \text{if } Z_i^* = W_i\gamma + u_i > 0 \\ Z_i &= 0 \quad \text{if } Z_i^* = W_i\gamma + u_i \leq 0 \end{aligned} \quad (2)$$

$$\text{Prob}(Z_i=1|W_i) = \Phi(W_i\gamma)$$

Where Z_i^* is an unobservable random variable representing utility derived by producers from market participation, W_i is a set of explanatory variables influencing market participation, γ is a vector of parameters to be estimated, u_i is a vector of stochastic error terms and $\Phi(\cdot)$ is the standard normal cumulative distribution function. It is assumed that $u_i \sim N(0,1)$.

In the second modelling stage, intensity of market participation was modelled as a function of a set of explanatory variables with the inverse of mills ratio (IMR) also included as one of the regressors (Equation 3). The addition of the

⁴ Number of animals sold is unobservable for producers who do not participate in the market

inverse mills ratio into the equation serves to correct for potential selection bias attributable to the fact that only observations where sales were recorded were useable for the regression. Letting Y_i denote the number of animals sold by the i^{th} farmer, the intensity of market participation was modelled as follows:

$$Y_i = X_i\beta + \tau \frac{\varphi(-W\gamma)}{1-\Phi(-W\gamma)} + \varepsilon_i \quad \text{if } Z_i = 1 \quad (3)$$

Where $\frac{\varphi(-W\gamma)}{1-\Phi(-W\gamma)}$ is the inverse mills ratio; φ denotes the normal probability density function; X_i is a vector of explanatory variables influencing intensity of market participation; β is a vector of parameters to be estimated; ε_i is a vector of stochastic error terms and is normally distributed $N(0, \sigma_\varepsilon^2)$; τ is an unknown parameter computed as $\rho_{\varepsilon u} \sigma_\varepsilon$ where $\rho_{\varepsilon u}$ is the correlation coefficient between the error terms ε_i and u_i .

To ensure that the estimated effect of knowledge of grades on market participation is unbiased, the two sets of explanatory variables in the model should also include all other factors that could influence market participation. The sets of variables included in the model as determinants of market participation and also participation intensity were similar except for “number of sheep and goats kept” which only appeared as a determinant of market participation. Essentially, the selection equation should contain at least one variable that is not in the intensity of market participation equation in order to avoid the problem of weak identification of parameters.

Producers' level of knowledge about the grading system was represented in the model by two variables, that is, (i) knowledge of quality categories of animals in the grading system and (ii) knowledge of attributes considered during grading. The level of knowledge about quality categories was inferred not only from respondents' ability to correctly describe all the various categories but also their knowledge about which quality categories are exported. The variable was expressed on a scale of 0 to 2 depending on whether a producer had no knowledge of both issues (0), was correct on only one (1), or was right on both (2). On the other hand, producers level of knowledge about the various attributes considered during grading was measured on a score of 0 (least knowledgeable) to 5 (most knowledgeable). These scores represent the number of correct responses regarding the importance of some 5 attributes (age, sex, conformation, nutritional status and breed) in defining the grade of an animal. Other explanatory variables in the model included gender, age and level of education of household head, gender of sales decision maker and type of livelihood zone.

Results

Demographic characteristics of the surveyed households

A total of 144 households (48 in each of the 3 livelihood zones) were surveyed (Table 2). The total number of respondents however surpassed that of the surveyed households owing to a decision to interview both spouses individually whenever they were both available. In effect, both husband and wife were interviewed in 65 of the households including 32 in Hawd, 28 in Togdheer and 5 in West Golis. Interviewing both spouses aimed at capturing any intra household differences that may exist between men and women on issues such as awareness of the livestock grading and pricing system.

Table 2. Selected demographic characteristics of the surveyed households

		West Golis Pastoral	Togdheer Agro- pastoral	Hawd Pastoral	Overall
Number of HHs interviewed		48	48	48	144
Gender of respondents	Male	23(48)	33(69)	36(75)	92(64)
	Female	30(63)	43(90)	44(92)	117(81)
Gender of HHH in surveyed households	Male	38(79)	44(92)	42(87)	124(86)
	Female	10(21)	4(8)	6(13)	20(14)
Age of household	Mean	47.8	44.9	44.5	45.7
	Std. deviation	15.7	9.2	11.5	12.5
	Up to 30years (%)	17	6	15	13
	>30 to 40 years (%)	21	40	27	29
	>40 to 50 years (%)	29	33	35	33
	>50 to 60 years (%)	21	17	13	17
	>60 to 70 years (%)	4	4	6	5
Level of education of household head	>70 years (%)	8	0	4	4
	None	43(90)	25(52)	37(77)	105 (73)
	Elementary	3(6)	11(23)	6(13)	20(14)
	Intermediate	2(4)	8(17)	4(8)	14 (10)
	Secondary Graduate	0	3(6)	1(2)	4(3)
	Madrasa	0	1(2)	0	1(0.7)
Years of experience of household head in goats/sheep rearing	Mean	23.4	14.8	17.5	18.7
	Std. deviation	13.9	10.6	11.3	12.9
	Minimum	1	0	2	0
	Maximum	50	40	52	60
Form of ownership of land used for rearing sheep and goats	Privately owned	21	38	13	24
	Rented	2	6	2	3
	Communally owned	79	54	81	72
	Other forms of ownership	0	2	4	2

The numbers in brackets are percentages, HH=Household, HHH=Household Head

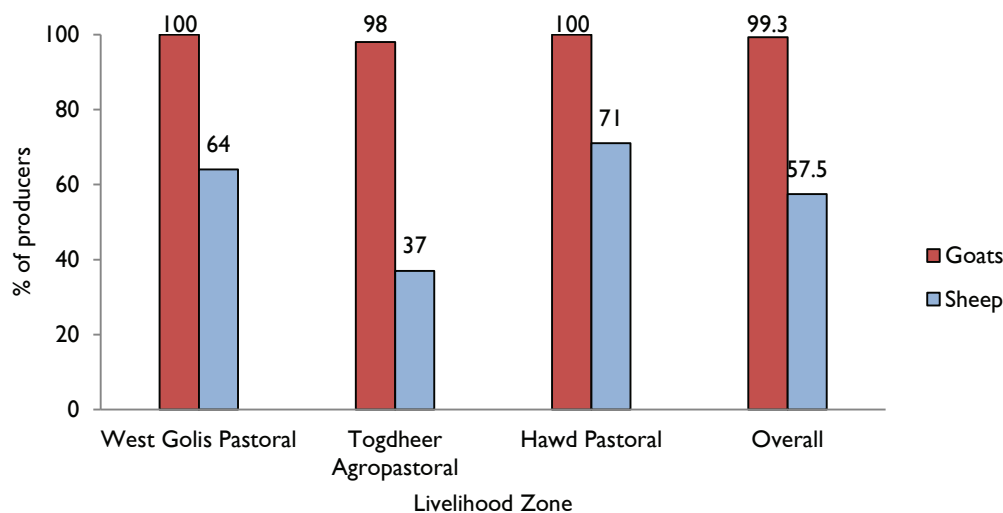
The majority of the surveyed households were male-headed with female-headed households accounting for only 14% of the entire sample. Surprisingly, however, female respondents outnumbered men (117 compared to 92) and the trend was the same in the three livelihood zones. In households where men were unavailable for interviews, a common explanation was that they were away in the bush tending to their livestock or they were just hanging out in market centres.

Most of the household heads (73% in Togdheer, 62% in Hawd and 50% in West Golis) were middle aged (30 to 50 years old). They however had low literacy levels, with 73% of them having no formal education. The low literacy levels may be attributed to the civil war of the early 1990s when majority of the respondents were of school going age. It is important to note that such low level of literacy could have implications not only on the way livestock keepers conduct their livestock production and marketing activities, but also on methods used to deliver marketing and extension information.

Sheep and goats keeping and other livestock activities

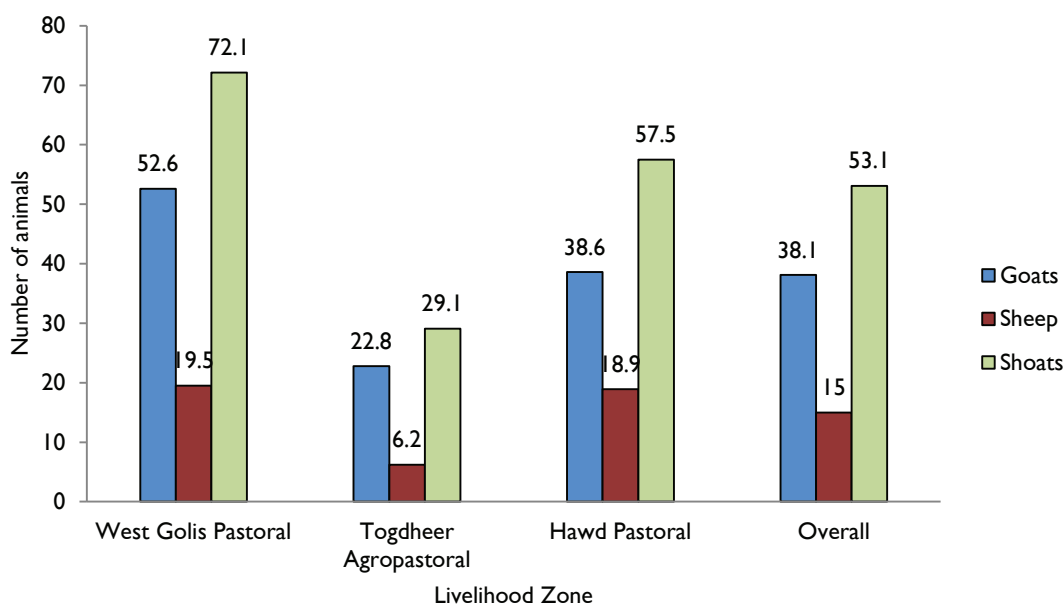
The surveyed producers boasted significant experience in rearing of sheep and goats (mean=19 years) (Table 2). All, except one household kept goats compared to 58% that kept sheep (71% in Hawd, 64% in West Golis and 37% in Togdheer) (Figure 3).

Figure 3. Percentage of producers keeping sheep and goats.



On average, a household kept 53 small ruminants and these included 38 goats and 15 sheep (Figure 4). Flock sizes varied widely across livelihood zones with pastoral livelihoods (West Golis and Hawd) registering relatively higher number of animals (mean=72 and 58, respectively) than the agro-pastoral Togdheer (mean=29). On average sheep accounted for 27%, 33% and 21% of the flock of small ruminants in the West Golis, Hawd and Togdheer, respectively.

Figure 4. Mean number of animals kept.



Livestock holding in Togdheer agropastoral is much lower due to the diversified nature of agricultural production. This livelihood zone receives bimodal rainfall (Gu and Deyr) that ranges from 200-300 mm/ annum (Muchiri 2007). Gu is main rainfall season that commences in April to June and Deyr is the shorter rainfall season that starts in October and secedes in December. This rainfall pattern favours rain-fed production of cereal crops (sorghum and maize), legumes (cowpeas) horticulture fruit trees, water melon and vegetables like tomatoes. The major areas for cereal production are the lowlands bordering Hawd (Owdweyne agricultural villages), Beer of Burao and the mountainous villages (Suusqsade, Goda weyne, Goda yare, Geel lookor and Girdheys) of Sheikh District.

Most livestock rearing in the study area commonly takes place on communal/cooperative land. However, some producers (24%) reported that they used privately owned land (Table 2). More of the agro-pastoralists in Togdheer (38%) than the pastoralists in the other two livelihood zones (about 20%) reported use of privately owned land for their sheep and goats’ activities. Land tenure in Somaliland is based on co-operative and private land ownership. Private ownership is more common in Togdheer particularly in irrigated areas that are found along the seasonal rivers.

Table 3 shows the frequency (in form of percentage) of households in which various entities reportedly owned the stocks of small ruminants there. The column totals of percentages do not add up to a 100 due to cases where flocks in households comprised of animals owned by different entities (household head only, spouse only, jointly by household head and spouse, children in the household, relatives, business partners and others).

Table 3. Frequencies (%) for owners of sheep and goats in households

	West Golis pastoral	Togdheer ppropastoral	Hawd pastoral	Overall
N	46	45	46	137
Household head only	53	43	46	48
Spouse only	2	2	6	4
Jointly by household head and spouse	36	56	52	48
Male child	0	2	0	1
Relatives	4	11	4	6
Business partners	0	2	0	1
Others	0	2	0	1

Although households where animals solely belong to the household head (often a man) were the most common, in appreciable number of cases the small ruminants stocks comprise of animals owned by both the household head and spouse. Additionally, in a significant number of cases women together with their husbands or alone are involved in contributing labour for sheep and goats activities and also making decisions on animals sales and purchases (Table 4). Just like in ownership, the frequencies exceed 100 because roles were not mutually exclusive.

Table 4. Contribution by various persons in sheep and goats activities

	West Golis pastoral	Togdheer agropastoral	Hawd pastoral	Overall
N	46	45	46	137
Who contributes labor (%)				
Jointly in the household	54	42	63	53.3
A woman in the household	9	16	13	12.4
Man in the household	2	11	4	5.8
Male child	28	24	15	22.6
Female child	4	2	4	3.6
Business partner	2	4	0	2.2
Others	4	0	0	1.5
Who decides about sales and purchases (%)				
Jointly in the household	33	62	41	45.3
A woman in the household	13	7	9	9.5
Man in the household	45	24	48	39.4
Male child	0	2	4	2.2
Business partner	7	0	0	2.2
Others	13	0	0	4.4

Beside sheep and goats, numerous producers also kept other species of livestock including camels, donkeys, cattle and chicken (Table 5). Rearing of camels was the most popular alternative livestock activity both in terms of numbers of producers involved (19 to 44%) and also stocks of animals kept (on average 4.3 to 8.6 animals). The rearing of camels was most common in Hawd (44% of producers) where rearing of cattle was least common (only 2% of producers).

It is important to note that the dominant livestock species reared are sheep and goats. However, camels are an important productive asset for the better-off and middle wealth groups. Cattle are close to disappearing due to high susceptibility to the impacts of drought (FSNAU, 2011).

Table 5. Other species of livestock kept

		Number of producers who rear other animals	% of producers who rear other animals	Number of animals kept			
				mean	Std. Dev.	min	Max
Camel	West Golis Pastoral	9	19	8.6	6.7	1	20
	Togdheer Agropastoral	8	17	4.3	3.3	1	10
	Hawd Pastoral	21	44	6.9	7.9	1	30
	Overall	38	26	6.7	6.9	1	30
Cattle	West Golis Pastoral	5	10	4.4	1.9	2	7
	Togdheer Agropastoral	3	6	4.3	4.2	1	9
	Hawd Pastoral	1	2	2	-	2	2
	Overall	9	6	4.1	2.6	1	9
Donkey	West Golis Pastoral	8	17	1.6	0.7	1	3
	Togdheer Agropastoral	6	13	1.2	0.4	1	2
	Hawd Pastoral	14	29	1.4	0.7	1	3
	Overall	28	19	1.3	0.7	1	3
Chicken	West Golis Pastoral	0	-	-	-	-	-
	Togdheer Agropastoral	5	10	7	5.4	2	15
	Hawd Pastoral	4	8	2.3	2.5	1	6
	Overall	9	6	4.9	4.8	1	15

Participation in sheep and goats marketing

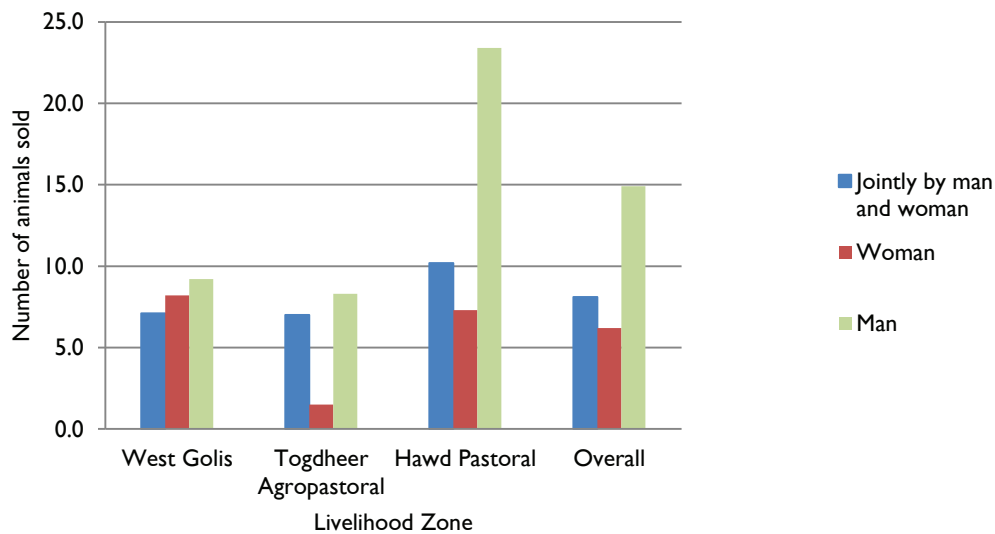
Most households (79-85%) had sold some sheep and/or goats during the one-year period preceding the survey. On average, a household had sold about 10 animals but this varied widely across study sites with Hawd and West Golis pastoral zones recording a mean of about 14.7 and 9.2 heads/producer respectively compared to only 6.2 in the Togdheer agro-pastoral zone (Figure 5). Market outlets varied across study sites with farm gate being the most frequent point of sale in the Togdheer agro-pastoral region where the numbers of sheep and goats kept (Figure 4) and sales volumes (Figure 5) were lowest. Conversely, in Hawd and West Golis, the most popular outlets included “regional” and “district” markets, respectively⁵. The higher use of farm-gate as a market outlet for producers in Togdheer may be attributed to its location along the transport corridor for export quality livestock (see Figure 2) and the long distance to the main regional market located in Burao. In this regard, the agents of exporters collect livestock from farm-gate outlets (commonly known as bush markets) before delivering them to exporters at the port of exit in Berbera. On the other hand, producers from West Golis and Hawd pastoral livelihoods will more often than not transact their animals through the regional livestock market in Burao and the adjacent tributary district markets (like Odweyne) before the animals are delivered to the port of Berbera. Overall, the high numbers of producers reporting sales of sheep and goats and the relative high number of animals sold/household authenticates the importance of small ruminants as sources household income, particularly in pastoral livelihoods.

It was found that gender of household head had no significant effect on numbers of animals sold. A close scrutiny of the data however revealed that sales decision makers were not always the heads of the households. Rather, there were many cases in male headed households when some of sales decisions were made jointly by men and their spouses (43% of cases) and also by women alone (7% of cases). More often than not, in male headed households where sale decisions were made by men, the men fully resided within the homestead. In cases where sales decisions were made jointly by both spouses in male headed households, the men were not permanent residents within the

⁵ See Negessa et al. (2008) for profiling of livestock markets in Somalia

homestead. Figure 5 shows the means of numbers of sheep and goats sold in categories of households by gender of sales decision maker.

Figure 5. Number of sheep and goats sold in categories of households by gender of sales decision maker.



Sales tended to be higher where sales decisions were made by men and lowest in cases where the women made these decisions.

Awareness of grades

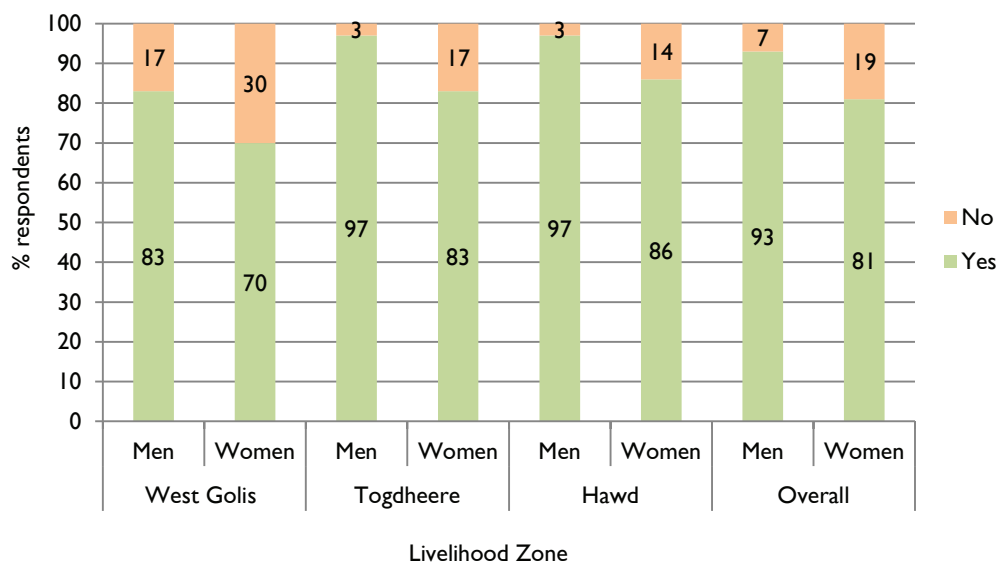
Negassa et al. (2008) and Mugunieri et al. (2012) have documented the widespread use of a grading system by buyers and sellers of livestock in Somalia. In this system, animals are categorised into 4 grades, namely: grades I, II, III, and local; depending on various attributes (nutritional status, body conformation, age and weight). Grade I represents animals of the highest quality and fetches the best price. The quality and price reduces as one progresses from grade I to local grade. Grades I, II, and III are usually exported while the local grade is consumed within the country.

During this survey, we sort to establish the level of awareness of this grading system among men and women producers. Our assumption was that producers could not make deliberate efforts to exploit the grading system to realise higher incomes if they were not aware of it. Therefore, livestock producers were asked whether a grading system existed in the markets they sold animals. Given the documented widespread usage of the grading system, producers who responded that no grading system was present were assumed to be unaware of it. Those who responded in affirmation were probed further on how the grading is done so as to fully ascertain the awareness.

About 7% and 19% of the surveyed men and women producers, respectively reported absence of a grading system in markets they sold animals (Figure 6). These two gender segregated proportions were not significantly different ($p=0.01$). More producers (both men and women) in West Golis than in Togdheer and Hawd reported absence of a grading system in their point of sale markets.

In light of the reality that a grading system exists in all markets, these results suggests that majority of producers are aware of the existence of the grading system. The level of awareness was however less among women than men producers and also among producers in West Golis than Togdheer and Hawd livelihoods. When the two pastoral livelihoods were compared, West Golis reported lower levels of awareness of the grading system and lower household-level mean sales than Hawd (Figure 5), despite having a higher household-level mean flock holding size (Figure 4).

Figure 6. Percentage of men and women indicating whether or not a system exist in livestock markets where they sell animals.



Three categories of answers emerged when respondents who affirmed the presence of a grading system in sales markets were requested to describe how the grading is done. The first category comprising majority of producers (all producers in Togdheer and Hawd and also 72% of men and 84% of women in West Golis) correctly mentioned all the four grades of animals (Table 6). The second category (11% of men and 5% of women in West Golis) despite naming the three export grades, left out the local grade. The third category (17 % of men and 11% of women in West Golis) indicated that the system comprises of only 2 grades.

These results authenticate the high level of awareness among producers about the livestock grading system in livestock sales markets. From the results it can also be deduced that the relatively lower level of awareness of the grading system among producers in West Golis extends to knowledge of details of the grading system.

Table 6. Percentage of producers giving their description of categorisation of animals in the grading system used in Somalia

	West Golis pastoral	Togdheer pgropastoral	Hawd pastoral	Overall
N	46	45	46	137
Household head only	53	43	46	48
Spouse only	2	2	6	4
Jointly by household head and spouse	36	56	52	48
Male child	0	2	0	1
Relatives	4	11	4	6
Business partners	0	2	0	1
Others	0	2	0	1

Many producers were spot-on when they were probed about the traits attributes determining grade in sheep and goats (Table 7). Conversely, only a few men (8% and 11%) and women (4% and 9%) were unaware that breed plays no role in influencing the grades in sheep and goats. Interestingly, many producers (about 90% of men and 91-96% of women) viewed sex as an important determinant of grade perhaps because grading is commonly performed on male animals for export.

Majority of producers (about 80% of both men and women) knew that the demand for sheep and goats in Somaliland tend to be highest during the Muslim Hajj festivities. Many of the producers (80% of men and 74% of women) were also aware that prices tend to be highest during this season.

Table 7. Frequency of men and women producers citing attributes considered when defining grade

	Attribute	West Golis	Togdheer	Hawd	Overall
Frequency of men citing attributes considered when defining grade in sheep	N	17	26	33	76
	Age	100	100	100	100
	Sex	94	88	94	92
	Conformation	94	100	100	99
	Nutritional status	100	100	100	100
	Breed	0	12	10	8
Frequency of women citing attributes considered when defining grade in sheep	N	14	27	33	74
	Age	100	96	100	99
	Sex	93	93	100	96
	Conformation	100	93	91	93
	Nutritional status	100	100	100	99
	Breed	0	0	9	4
Frequency of men citing attributes considered when defining grade in goats	N	20	33	36	89
	Age	90	100	100	97
	Sex	85	91	94	91
	Conformation	95	100	100	99
	Nutritional status	85	100	100	99
	Breed	0	18	11	11
Frequency of women citing attributes considered when defining grade in goats	N	20	33	37	90
	Age	75	97	100	93
	Sex	70	94	100	91
	Conformation	100	100	92	94
	Nutritional status	70	100	100	92
	Breed	10	6	11	9

Brokers were cited as the main sources of information by both men and women producers (74-80%) (Table 8). This was expected because of the prominent role played by these actors in livestock marketing in Somalia (Negassa et al., 2008). They are involved in virtually all transactions that are concluded in markets, as well as outside markets. They help sellers find buyers and also play an active role in negotiating the price. Other frequently cited sources of information included regular customers and suppliers to markets, traders and also personal observation. Again the importance of traders as sources of market information for farmers relates to the perverseness of these actors in livestock marketing chains in Somalia as reported in Negassa et al. (2008).

Table 8. Percentage of surveyed men and women producers citing their source of livestock marketing information

	Demand		Price		Supply		Grade	
	Men	Women	Men	Women	Men	Women	Men	Women
N	92	110	92	110	92	110	92	110
Personal Observation	36	23	38	23	38	24	42	24
Speaking with regular customers and suppliers	40	43	42	45	38	44	41	42
Brokers	76	78	80	80	76	76	79	74
Traders	39	39	36	39	37	38	35	34
Newspapers	1	0	1	0	1	0	1	0
Radio/TV	5	2	4	0	4	0	3	0
Producers association	1	0	1	1	2	0	1	0
Marketing agencies	2	0	2	0	2	0	2	1

Determinants of market participation

A Heckman selection model was estimated to delineate some of the factors influencing producers' participation in the marketing of sheep and goats. Table 9 shows the results of the Heckman two stage model. Since the dependent variable, i.e. "number of sheep and goats sold during the preceding 12 months" was positively skewed, it was included in the model in logarithmic form. The model size was 138 observations (out of which 8 were censored) and the goodness of fit was statistically significant ($P=0.01$). The parameter "rho" which represents the correlation between the error terms in "market participation" and the "intensity of market participation" model equations was also statistically significant ($P=0.03$) justifying the use of the Heckman's selection model over ordinary Tobit regression.

Determinants of probability of market participation

Factors that were significant in influencing market participation included "numbers of sheep and goats kept" and "age of household head". As expected, the size of flocks of sheep and goats kept had a positive effect on the probability of market participation. In this export orientated small ruminant production and marketing system, animals sold are often males while females are retained for breeding. Where flocks are small, production of male animals for sale is likely to be low thus minimising the chance of producers participating in markets as sellers. Also, producers with fewer animals may give priority to building up their stocks before engaging in any selling.

Table 9. Heckman’s two stage model estimates of factors influencing market participation and the intensity of market participation

		Coef.	Std. Err.	P>z
Participation intensity (Dependent Variable=log number of animals sold)				
Constant		1.10	0.40	0.01
Gender of household head (1=man; 0=woman)		-0.33	0.22	0.13
Knowledge of quality categories of animals in the grading system		0.01	0.14	0.92
Knowledge of attributes considered during grading		0.03	0.06	0.60
Age of household head (years)		0.004	0.01	0.46
Level of education of household head		-0.03	0.08	0.69
Sales decision maker (base of comparison=a female in the household)	Male household head	0.73***	0.21	0.00
	jointly by spouses	0.38*	0.20	0.06
Survey region (base of comparison=Togdheer agro-pastoral)	Hawd pastoral	0.35**	0.18	0.05
	West Golis pastoral	0.56***	0.19	0.00
Selection (Dependent variable=Market participation(0,1))				
Constant		1.05	1.2	0.39
Gender of household head (1=man; 0=woman)		0.11	0.83	0.88
Knowledge of quality categories of animals in the grading system		0.36	0.44	0.41
Knowledge of attributes considered during grading		-0.13	0.18	0.46
Age of household head		-0.03**	0.02	0.05
Level of education of household head		0.42	0.48	0.39
Survey region (base of comparison=Togdheer agro-pastoral)	Hawd pastoral	0.34	0.67	0.60
	West Golis	0.07	0.69	0.92
Sales decision maker (base of comparison=a female in the household)	Male household head	0.10	0.70	0.88
	jointly by spouses	0.24	0.67	0.71
Number of sheep and goats kept		0.04**	0.02	0.02
/athrho		-0.74**	0.30	0.01
/lnsigma		-0.26***	0.06	0.00
rho		-0.63	0.18	
sigma		0.77	0.05	
lambda		-0.49	0.15	
Number of obs = 138				
Censored obs =8				
Uncensored obs=130				
Wald chi2(8)=32.01				
Prob > chi2=0.0002				
Log likelihood = -167.7				
LR test of independence of eqns. (rho = 0): chi2(1) = 4.55 Prob > chi2 = 0.03				

***, **, * indicates that the dependent variable is statistically significant at 1%, 5% and 10% level respectively

Probability of market participation was significantly higher in cases where household heads were relatively younger (P=0.05). This finding perhaps reflects the higher demand for income often faced by relatively younger parents at a stage where many of their children are highly dependent on them. In addition, such young adults may not have accumulated much wealth in other forms making them more dependent on sale of sheep and goats whose production is relatively easier to get into.

Since it was shown that West Golis livelihood zone had a higher average household flock size but lower household mean sales and lower awareness of the grading when compared to Hawd, one would have then expected that awareness of the grading system would have a significant relationship with household level sales. However, awareness of the livestock grading system did not reach significance level in influencing the probability of market participation. This lack of significance may thus imply that knowledge of the fundamental issues about the grading system is already widespread and in use and that fine issues such as ability to correctly describe the grading system and also knowledge of which grades of animals are exported does not make any difference with respect to market participation. Alternatively, one may argue that despite awareness of existence of the grading system, production of superior grades demands more judicious husbandry practices that may in-turn slow down market offtake volumes *ceteris paribus*. If this were to hold, then producers would strive to gain on premium prices for quality animals rather than higher offtake volumes.

Determinants of intensity of market participation

Consistent with results of the descriptive statistics, gender of household head had no significant effect on intensity of market participation. On the other hand, households where sales decisions were made by either a male household head or collectively by both spouses tended to have more intensive participation ($P=0.01$ and 0.1 , respectively) compared to cases where these decisions were solely made by women. The strong effect of sales decision making by male household heads on intensity of market participation perhaps relates to a trend that has been reported in past studies of men assuming greater control of activities in cases where these tend to be important sources of household cash income.

It was also found that producers in West Golis and Hawd participated in the market more intensively compared to their counterparts in Togdheer. This finding perhaps relates to differences in livelihoods in the 3 study sites. Unlike Togdheer which is agro-pastoral, West Golis and Hawd are strictly pastoral with only livestock as the main source of livelihood. In the absence of crop production, livestock producers in West Golis and Hawd may need to sell more animals to raise all the amount of money they need to finance their food purchases. Again, knowledge of the livestock grading system had a no significant effect on intensity of market participation.

Efforts to exploit the grading system to make for more income

To evaluate whether producers made any deliberate efforts to exploit the indigenous grading and pricing system to make higher profits, data was collected on grade composition of animals sold, prices received, sales seasons and engagement in practices aimed at improvement of quality of animals sold. Figure 8 shows the frequency of households reporting the quality of animals they had sold during the last 12 months. A total of 110 households gave information on the grades of animals sold. Most frequently, the tendency was for households to sell animals of higher grades, with sale of animals of grades I and II dominating (73% and 69% of households). Only 39% and 45% of households reported sale of animals of Grade III and local quality.

Majority of households in the three study sites (from 64% in Hawd to 94% in West Golis) reported sales of grades I and II animals. Only 19% of the households in West Golis reported sale of local quality grade of animals compared to 50% in Togdheer and 45% in Hawd.

The quality composition of animals sold was also analysed in terms of numbers of animals of various grades sold. Figure 9 shows the percentage of composition of the 4 grades of animals in the flocks of animals sold. Grade I and II accounted for the largest proportions of the animals sold (40% and 29%, respectively) with grade III and the local grade accounting for only 15% and 17% respectively. In West Golis, grade I accounted for the bulk of the animals

sold (about 60%) compared to about 30% in Togdheer and Hawd. Conversely, grade III and the local quality grade accounted for minimal sales in West Golis (16%) compared to over 35% in Togdheer and Hawd.

Figure 7. Frequency of households reporting sale of animals of various grades during the last 12 months.

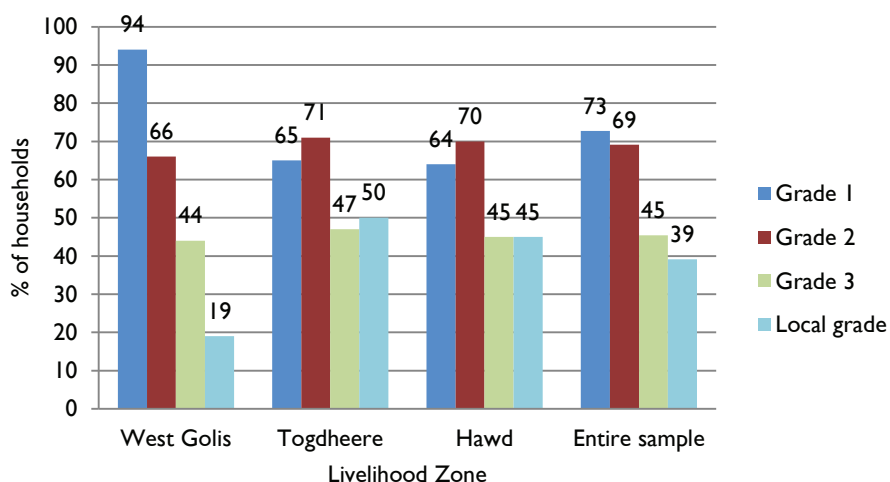
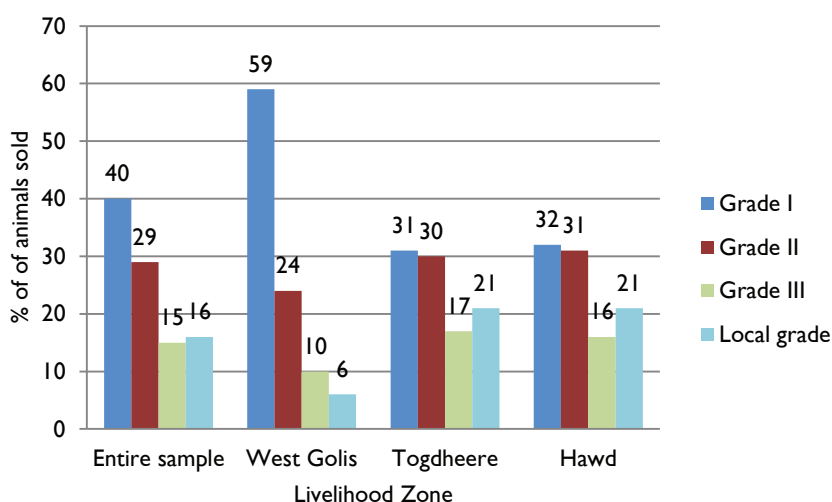


Figure 8. Grade composition in flocks of sheep and goats sold.



Results from a test of equality of proportions showed that the quality composition of flocks of animals sold out by male versus female headed households was not statistically different. However, when the comparison was made for types of households by gender of sales decision maker, it was found that high quality animals (grade I) were relatively fewer and lower quality animals (grade III and the local quality grade) relatively more in cases where sales decisions were jointly made by the men and their wives than in cases where these decisions were made singly by men or women (Figure9).

Table 10 shows the average prices received by producers for various grades of animals sold. As expected, higher quality animals fetched better prices. On average, a grade I animal fetched 68.9 – 75.5 USD compared to 58.8 – 64.9 USD for grade II, 46.5 – 52.2 USD for grade III and 41.8 – 49.7 USD for the local quality grade. From these results, it is clear that producers could earn substantially higher incomes by selling higher quality animals. Again, a t-test of the equality of means indicated that prices received by producers in male and female headed households were statistically not different.

Figure 9. Grade composition in flocks of sheep and goats sold in types of households by gender of sales decision maker.

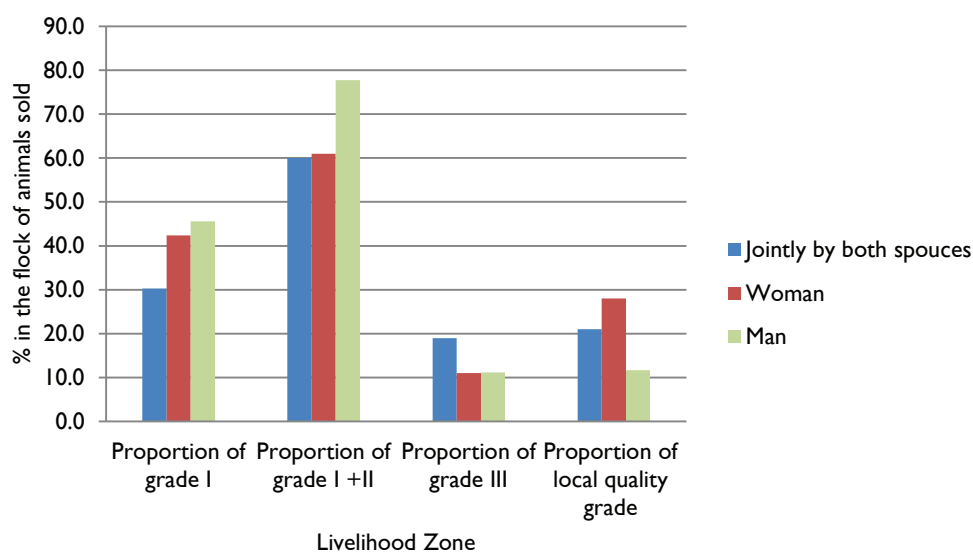


Table 10. Mean prices received by producers for various grades of sheep and goats sold

		Grade 1	Grade 2	Grade 3	Local
Goats	West Golis	68.9 (8.8)	58.8 (7.9)	46.5 (4.4)	43.0 (7.7)
	Togdheer	73.2 (7.8)	62.6 (7.7)	51.1 (8.9)	49.7 (9.2)
	Hawd	73.7 (7.7)	62.6 (9.4)	50.2 (11.3)	46.5 (11.0)
	Overall	72.1 (8.3)	62.0 (8.6)	49.5 (9.1)	46.5 (9.9)
Sheep	West Golis	72.9(6.8)	61.5 (3.6)	47.6 (4.8)	41.8(8.4)
	Togdheer	75.5 (6.0)	63.9 (7.6)	52.0(6.2)	46.9 (7.1)
	Hawd	75.2 (5.9)	64.9 (7.0)	52.2 (10.1)	48.0 (12.3)
	Overall	74.7 (6.2)	63.6 (6.6)	51.0 (7.8)	45.9 (10.0)

Numbers in brackets are standard deviations

For a more rigorous analysis of the relationship between quality of animals sold and price received by producers an OLS regression model was estimated. This model was applied on the sample of producers who were aware of the grading system in order to delineate the impact of application of the grading system knowledge through manipulation of proportions of different grades in the offtake flocks on mean price received by the household. Table 11 presents the results of the OLS model. The model accounted for 21% of the variation in the data and was significant at 1% level.

Table 11. Factors influencing levels of prices received by producers for sheep and goats sold

	Coef.	Std. Err.	t	P>t
Constant	62.28***	4.70	13.26	0.00
Number of sheep and goats sold	0.09**	0.04	2.2	0.03
Age of household head	0.03	0.08	0.45	0.66
Main occupation of the household head ^a	-3.29*	1.85	-1.78	0.08
Male HH sales decision maker ^b	-2.64	2.77	-0.95	0.34
Joint spouses decision makers ^c	-2.94	2.74	-1.07	0.29
Gender of household head ^d	-0.11	2.92	-0.04	0.97
Number of sheep and goats kept	0.00	0.03	-0.12	0.90
Number of camels kept	0.09	0.20	0.47	0.64
Number of cattle kept	-0.39	0.74	-0.52	0.60
West Golis ^e	-3.47	2.30	-1.51	0.13
Togdheer ^f	0.58	2.22	0.26	0.79
Proportion of grades I & II animals sold	6.63***	1.33	4.99	0.00
less proportion of grades III & local quality grade				
R-squared = 0.30				
Adjusted R-squared = 0.21				

^a Dummy variable which takes 1 when livestock keeping is the main occupation of the household head and 0 otherwise.

^b Dummy variable which takes 1 when male household head is the decision maker and 0 otherwise

^c Dummy variable which takes 1 when joint spouse are the decision makers and 0 otherwise

^d Dummy variable which takes 1 when the household head is a man and 0 when it's a woman

^e Dummy variable which takes 1 when the study site is West Golis and 0 otherwise (control = Sheikh)

^f Dummy variable which takes 1 when the study site is Togdheer and 0 otherwise (control = Sheikh)

***, **, * indicates that the dependent variable is statistically significant at 1%, 5% and 10% level respectively

As expected, producers whose flock of animals sold comprised of a larger proportion of superior grade animals realized significantly higher prices per animal. In addition, since the size of flock sold had a positive and significant effect on prices received, one may intuitively deduce that so long as producers are aware of the existence of the grading system, when they present larger flocks for sale, they ensure that the proportion of superior grades is high in order to tap into higher prices. This implies that producers endeavor to remain oriented to quality even with increase in scale of operation.

Surprisingly, producers who had livestock keeping as their most important occupation realized lower prices. This finding is probably associated to the fact that in many cases alternative occupations involved livestock trading and brokerage. It is likely that producers who stuck to livestock keeping as their only occupation were less knowledgeable about issues of marketing compared to their compatriots who were involved in these marketing oriented activities.

Practices followed to improve grades

The previous section revealed that sale of flocks with larger proportions of superior quality animals conferred higher prices per animal to producers. Besides, producers' expansion of scale of operation did not dilute emphasis on superior grades. Towards this end, information was sought on any deliberate efforts employed by producers to improve the quality of animals sold. A significant proportion (45% in West Golis, 40% in Hawd and 31% Togdheer) indicated that they strategically fattened animals before sale (Table 12). The fattening approach applied by the majority simply involved prolonged grazing of animals in communal land during the rainy season. In addition, use of purchased fodder was also reported by 31% of respondents. The high reliance on prolonged grazing for quality up-grading will most likely contribute to negative climatic consequences.

Twenty three percent of the producers (38% in West Golis, 17% in Hawd and 12% in Togdheer) observed that they were engaged in buying of poor-grade low-cost animals which they fattened for sale at higher prices (Table 13). Similarly, the fattening approach utilized most frequently involved “grazing in communal land” (26- 63% of cases) and purchased fodder (14 - 26 %). Besides feeding, other practices frequently used to improve the quality of animals before selling included deworming (67 - 95%) and feed supplementation (Table 14).

Table 12. Frequency of producers engaged in strategic fattening of animals before sale

Variables	West Golis	Togdheer	Hawd	Overall
Do you purposely fatten animals before sale (% yes)	45	31	40	39
Fattening season				
Jilal (Jan. – March)-Very dry season	35	21	26	28
Gu (April – June)-Long rains	15	71	53	43
Hagaa (July- Sept.)Relatively dry season	0	0	5	2
Dyr (Oct – Dec) Short rains	30	0	5	13
Other season	10	7	0	6
Source of feed				
Own farm	35	14	0	17
Grazing in communal land	30	64	47	45
Purchased in local market	10	14	10	11
Purchased from district market	5	7	21	11
Purchased from regional market	15	7	5	9
Others	20	14	0	11

Table 13. Frequency of producers involved in purchase of poor grade animals to fatten and sale

	West Golis	Togdheer	Hawd	Overall
Do you buy poor grade animals to fatten for sale at a higher price(% Yes)	38	15	17	23
Poor animals fattening weeks				
Mean	23	12	12	18
SD	18	4	7	14
Source of feed for fattening purchased poor animals				
Own farm	21	14	0	15
Grazing in communal land	26	43	63	38
Purchased in local market	0	0	13	3
Purchased from district market	11	14	13	12
Purchased from regional market	15	0	0	9
Others	21	29	0	18

Table 14. Frequency of producers citing other practices used to improve the grade of animals sold

Variables		West Golis	Togdheer	Hawd	Overall
Other management practices followed to improve grade	Deworming	67	85	95	83
	Breeding with improved breeds	2	2	6	4
	Feed supplementation	16	65	45	42
	Others	7	9	9	8

Challenges experienced by producers with the grading system

Surveyed producers were also asked to state the challenges posed to them by the animal grading system used in Somaliland. While no one single challenge was overwhelmingly popular, the largest proportion of both women (25%) and men respondents (18%) complained that the system made them feel cheated by making them get relatively low prices for what they apparently considered to be superior animals (Table 15).

Other frequently cited complaints included delayed payments that are channelled through brokers who are tasked with assigning grades to the animals (14% of both men and women), fluctuation in demand for animals (13% of men and 14% of women), dishonesty among brokers (manifested by brokers assigning unfairly low grades to animals) (14% of men and 9% of women) and inability by producers to sell animals that were assigned lower grades (5% of men and 3% of women).

Table 15. Percentage of men and women producers citing challenges posed by the animal grading system in Somalia

	All producers	Men	Women
Unfairly low price	22	18	25
Delayed payment	14	14	14
Fluctuation in demand	13	14	13
Dishonest brokers	11	14	9
No institutional standards they follow	4	6	3
Inability to sell low quality animals	4	5	3

Problems faced by livestock producers in Somaliland

A documentation of problems experienced by producers was also carried out during the household survey. Table 16 presents the frequencies of producers citing the most important constraints facing their sheep and goats production and marketing activities.

The most frequently cited production constraints included drought and the attendant shortage of feed and water (82% of men and 83% of women), and also animal health issues including diseases, pests and parasites (77% of men and 84% of women). It is important to note that these constrain presentation of superior quality grades in markets.

While there was no overwhelmingly cited constraint in marketing, the largest proportion of producers (about 30% of both men and women) lamented about lack of market information. Other frequently cited constraints in marketing included problems in transporting animals to the market (27% of men and 16% of women), dishonesty among brokers (18% of men and 16% of women) and seasonality of market (nearly 20% of both men and women).

Table 16. Percentage of men and women producers citing problems they face in production and marketing of sheep and goats

		All producers	Men	Women
Problems in production	Livestock diseases, pests and parasites	70	77	64
	Drought and lack of feed and water	82	82	83
	Lack of drugs	5	8	2
	Lack of vets	6	4	8
	Predators	24	29	20
Problems in marketing	Dishonesty among brokers	17	18	16
	Lack of market	6	5	8
	Lack of market information	33	33	34
	Long distance to the market	8	12	4
	Low prices	15	14	15
	Market Seasonality	19	19	18
	Transportation to the market	22	27	16

Summary and conclusions

This study sought to determine the level of awareness of the informal indigenous livestock grading and pricing system among producers of small ruminants in Somaliland and the exploitation of this knowledge to increase market participation and realize better prices and returns for their animals. The study covered 3 livelihood zones in the Togdheer region including West Golis pastoral, Hawd pastoral and Togdheer agro-pastoral. A total of 144 households in 12 settlements in the 3 livelihood zones were interviewed during the study. Women accounted for over a half of the respondents as men were either away in the bush with their livestock, were transacting other non-farm related activities or they were just hanging out in market centres.

Literacy levels among the surveyed producers were quite low with 76% of the household heads reportedly having had no formal education. On average, a household kept 53 small ruminants of which 38 were goats and 15 sheep. Although households where sheep and goats solely belonged to male heads of household were dominant, an appreciable number of cases the stocks of sheep and goats comprised of animals owned by both male household head and the wife/wives. Additionally, in a significant number of cases women together with their husbands or alone were involved in contributing labour for sheep and goats activities and also making decisions on animals sales and purchases.

Results from the study confirmed the importance of small ruminants as sources of income in producer households in Somaliland with most households (81-83%) reporting sale of these animals during the previous one year. On average, a household had sold about 6.2 to 14.7 animals during the previous one year. Gender of household head had no significant effect on participation of households in the markets for these animals, perhaps due to wide involvement of both men and women in small ruminants production and marketing (FSNAU, 2012). The same applied to awareness of the grading system for animals. Production of superior quality animals demands more astute husbandry practices (Mugunieri et al., 2012). However, with producers reporting incessant droughts, absence of sufficient feed and water and ubiquitous livestock diseases, pests and parasites as key constraints to production, those who are aware of and utilize the grading system to their benefit, will most likely be constrained in delivering large volumes for sale (viz. high market participation). Nevertheless, sales tended to be higher where sales decisions were made by men and lowest when made by women, perhaps reflecting a trend that has been reported in past studies of men assuming greater control of production activities in cases where these tend to be important sources of cash (Achola, 1983).

Majority of producers were found to be aware of the existence of the grading system used in the marketing of live animals in Somaliland, but this knowledge did not confer advantage as far as market participation was concerned. One may then ask - of what value is such knowledge? To gain some insight into this question, the quality composition of the animals sold by these producers (those who were aware of the existence of the grading system) was analysed. It was shown that Grades I and II animals on average accounted for 32% and 31% of the animals in the flocks sold respectively. Grade III and the local quality grade accounted for 16% and 21% of the animals respectively. Overall, it was observed that there was deliberate effort by producers to increase the proportion of animals of superior grades in their market offtake flocks. The motive behind this strategy was deciphered from a scrutiny of the pricing of the different grades where producers earned substantially higher incomes by selling higher quality animals. On average, a grade I animal fetched 67.4 – 76.1 USD compared to 58.6 – 66.7 for grade II, 42.8 – 54.7 for grade III and 29.4 – 52.4 for the local quality grade.

It was further observed that producers who practiced this strategy were associated with higher average annual unit-sale-price for their animals. This strategy was maintained even with expansion of the small ruminants enterprise. One may thus conclude that while participating in markets, producers utilized the option of maximizing price per animal by increasing the proportion of superior quality animals in their flocks other than focussing on expansion of offtake per see.

This strategy was operationalized by producers through fattening their animals before presenting them for sale. The fattening approach used entailed prolonged grazing in communal fields during the rainy season, supplementation with purchased fodder (in dry seasons), deworming and use of feed supplements. There was high reliance on prolonged grazing in communal fields as the key option which in turn contributed to negative climatic consequences of feed scarcity and range degradation.

This study has provided evidence that most sheep and goats producers in Somaliland are aware of the existence of a grading system for marketed animals and they undertake measures to derive benefits from the system. Moving forward, there is need to increase the level of awareness of the grading system beyond the current levels of 93% among male farmers and 81% in women. More effort should focus on women who play a critical role in management of small ruminants in Somalia. Increasing awareness of and encouraging the application of the grading system should however take cognisance of the constraints that producers face and which have began to be reflected by the declining volumes of livestock exported from Somaliland.

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