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Cattle Marketing In High and Low Market Access Areas in the Borana Pastoral Region of Ethiopia

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Abstract

The study was conducted in Borana zone in 2009. Borana is an economically important pastoral region of Ethiopia. Livestock mainly cattle exports from Borana contribute substantially to national foreign exchange earnings. Market access is a critical factor influencing market participation of pastoralists. This study explored cattle marketing in low and high market access areas of Borana. A cross-sectional survey of 169 pastoral households and marketing monitoring study that provided 2818 records were used to collect data from two locations representing high market access area (HMA) and low market access area (LMA). A higher proportion of HMA pastoralists practiced selling (90%) than in LMA (76%). Households in HMA sold 1.4 times more number of cattle with significantly ($P<0.05$) higher prices than in LMA. There was more broker interference in LMA. Livestock export is an emerging opportunity for pastoral households to improve their livelihoods. However, market information and communication systems and cooperatives need to be developed to enable remotely located pastoral households to benefit from the export business.

Key words: *Cattle; cooperatives; market information; pastoral households, Ethiopia*

Introduction

Borana is one of the most economically important pastoral regions of Ethiopia. Livestock mainly cattle exports from Borana contribute substantially to national foreign exchange earnings. In pastoral production systems, the response to market seems to be hampered by high levels of variability and risk from environmental, socio-economic and institutional variables. Remoteness, physical barriers and high transaction costs reduce return and thus present a significant disincentive to market-oriented production (GL-CRISP PARIMA, 2007). The main livestock markets in the Borana rangeland are concentrated along the main roads from Addis Ababa to Moyale. Hence, the majority of pastoralists located in remote area do not have access to

these relatively better markets because of the long distance.

A lot of research works have been done on pastoral systems of Borana rangelands in different issues. Except one study conducted by Barrett *et al*. (2006) which focused on household level livestock marketing behavior among northern Kenya and southern Ethiopia in relation to market access; there has not been major work done that investigated the implication or relationship of market access to cattle production in general and marketing in particular in Borana. This study, therefore, was designed to explore cattle marketing and to identify opportunities and constraints of cattle marketing in low and high market access areas.

Materials and Methods

General description of the study area

The study was conducted in Borana zone of southern Ethiopia, 577 km away from Addis Ababa. The Borana zone covers an area of about 50,000 km^2. The plateau is divided into four major seasons. These include: (1)-*Ganna* (March-May), the long rainy season; (2)-*Adolessa* (June-August), the cool dry season; (3)-*Hagayya* (September-November), the short rainy season; and (4)-*Bona* (December-February). The average annual rainfall ranges between 350 and 900 mm. Rainfall is bimodal, 60% of the rainfall occurs between March and May (main rainy season) followed by a minor peak between September and November (short rainy season) (Coppock, 1994; Gemedo, 2004).

Study site selection

Two districts namely Arero and Yabello representing LMA and HMA, respectively were purposefully selected. Selection criteria mainly included: remoteness and closeness of the area from major market centers, availability of infrastructure, telecommunication service (i.e. mobile phone service), transportation service, accommodation (hotel service, room, etc), livestock market facilities and services (watering point, loading, fence, livestock market price information service, etc.). Arero is selected mainly due to its remoteness, i.e. the district's town is located 100 km far away from Yabello town. Moreover, it is far away from the main highway which passes from Addis Ababa to Nairobi and from Borana rangeland major livestock market areas namely Moyale, Dubluk and Haro Bake. The area does not have telecommunication service (mobile phone service), lacks transportation services, and lacks accommodation (hotel service, room, etc.) and there are no livestock market facilities and services which stimulate livestock traders move there and buy cattle.

In contrast, Yabello district is located in the central parts of the Borana Zone, and Zonal capital, Yabello town

is located in Yabello district, tarmac road direct from Addis Ababa to Nairobi pass through it and this creates an opportunity for livestock traders to truck cattle to central markets, and cross border markets, it is also relatively located close to urban centers. Moreover, two big livestock markets in Borana are found in Yabello district namely Haro Bake and Elwaya, and Dubluk secondary market, in Dire district is also located only 60 km far away from Yabello town. It has telecommunication service (mobile phone service), which is helpful for traders and livestock producers to communicate and easily obtain livestock market information, has also better accommodation and livestock market facilities and services, three fuel stations, has one commercial bank which help for traders and the community ease of transaction. The livestock markets are fenced and have provisions for feeding and watering.

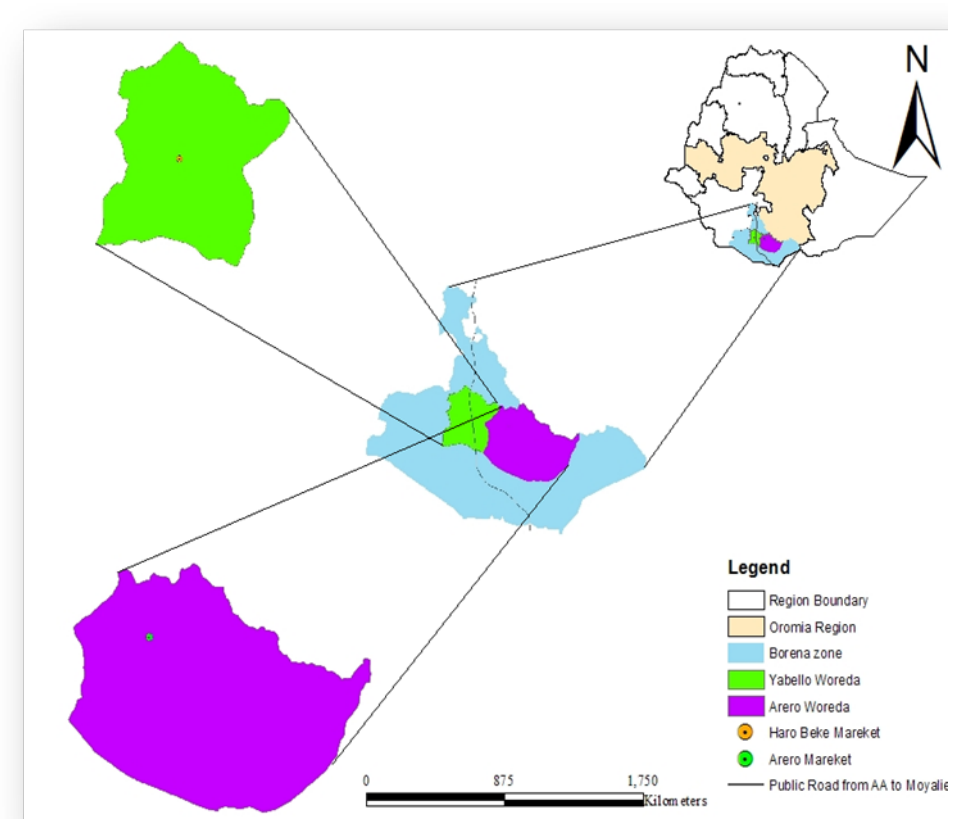


Figure 1. Map of the study area

Sampling Techniques and Data Collection

Tools and techniques for the study

As the issues addressed in the study were of qualitative and quantitative nature, different tools and techniques were used. Besides, individual interview by administering the structured questionnaire among the respondents and market monitoring, Participatory Rural Appraisal (PRA), Focus Group Discussion (FGD), key informant interview and field observation were used.

Cross-sectional survey

For the purpose of study, Arero and Yabello districts representing LMA and HMA were purposefully selected with the above mentioned selection criteria. From each study area (LMA and HMA) three pastoral associations (PA) (total of six PAs) were purposively selected. Purposive sampling technique was mainly undertaken: One, during selecting PAs from Arero district (LMA) to exclude those PAs relatively located proximate to Haro Bake market centers and to include those PAs far from the same market centers. Second, during selecting PAs from Yabello district (HMA) to exclude those PAs far away from market centers (referring to Haro Bake market), and to include those PAs closest to Haro Bake livestock market center. In selecting PAs from LMA, the availability of roads and aspects of security (conflict between Borana and Gabra ethnic group) were considered. The procedure for identifying households were based on arriving at each PA and from there to drive in different direction each day until encampment or *olla* was encountered, where three to five households randomly addressed, until 69 and 70 questionnaires were completed from LMA and HMA, respectively. During survey period due to occurrence of drought in Borana obtaining pastoralists in their *olla* was not an easy task, because of, pastoralists' movement in search of feed for their animal.

A comprehensive structured questionnaire was administered among the producers located in LMA and HMA that was prepared, pre-tested with a few cattle keepers and re-framed in such a way that pastoralists would easily understand and provide information that was most recent and easy to recall. The questionnaire consists of questions pertaining to a wide range of information, starting from marketing system such as market participation, frequency of market visit and source of information, purpose of selling cattle, reason for particular market preference and cattle marketing constraints. To elicit suggestions for the development of cattle production and marketing in the area based on

producers' opinion, at the end, producers view on cattle production and marketing constraints were also included. Data collection was through single subject interviews conducted by researchers and technical assistance from Yabello Pastoral and Dry Land Agriculture Research Center (YPDARC) along with the researcher.

Market monitoring

Two markets for this study were selected purposively. One from HMA namely Haro Bake (secondary) market which is located 27 km away from Yabello town, and the second one from LMA namely Arero (primary market) which is located 100 km far away from Yabello town. Haro Bake market was mainly selected, because it is the main cattle marketing center particularly for the study area and in general for the Borana, it offers large number of cattle to domestic, legal export, and cross border trade and it has a considerable facilities at the marketing site for ease of transaction. Arero (primary) market was mainly selected, because it is one of the main Arero district livestock market, and has poor road, has no market facilities and services, has no mobile phone service and lacks transportation service. Format was developed and enumerators were recruited and training was given on how to fill the format with necessary information and assigned in each market. In both markets, the market monitoring was carried out once a week on a major market day Arero market was surveyed on Thursday; Haro Bake market was surveyed on Sunday. A total of 2818 records were taken on price of different classes of cattle from October to December 2008. Data were mainly collected from each market on animals supplied to the market, sold and market price per head of animal on each cattle category (bull, cow, heifer, ox, steer and calf).

Haro Bake market is well fenced with concrete wall and has two separate doors one for entrance and one for exit of animal. Thus, total number of animal supplied was counted in the entrance in each category, total number of animal sold could also be obtained from the local council who collect the tax. However, this failed to indicate number of animals sold in each category. Therefore, number of animals sold was counted at the exit door in each category. Arero market was not enclosed and transaction was undertaken in open place. However, tax was collected by local councils. Total number of animals supplied was counted at time animals entered to the market from each direction. Total number of animals sold in each category was also obtained with the same fashion.

Price data on each category of animal was collected in such a way that 15 to 20 sample animals were randomly taken from each animal category and selling price was taken during peak transaction in Haro Bake market in each market day for the study period.

Samples were taken, mainly because a large number of animals supplied in each market day and it was not possible to address all animals. However, in Arero market since relatively small number of animals supplied in each market day all animals sold in each market day were included during the study period.

Informal survey

Participatory Rural Appraisal (PRA): To substantiate the information collected through individual household interview, PRA was conducted right after producer survey in both study areas. The application of PRA was used in pair wise ranking of cattle production constraints and drought coping mechanisms in both LMA and HMA. Before implementing PRA, training was given for PRA practitioners and necessary materials were collected (like flip chart, permanent parker and wooden stick). In doing pair-wise ranking, first parameters of interest to be included in the ranking exercises were listed and a matrix table prepared and displayed in the ground. Producers were asked to draw or represent things on the charts themselves using the available materials. Wherever possible the PRA practitioners helped to demonstrate how to start only. After pair-wise ranking, a rank score was calculated for each parameter.

Focused Group Discussion (FGD): Check list was prepared on the issues like trend of cattle price and their perception, marketing participation, cattle production and marketing constraints and possible suggestions for the given constraints was under taken through FGD. Focus Group Discussions (FGD) and PRA were held with 6-8 participants with elderly pastoralists who are known to have better knowledge on the present and past social and economic status of the study areas, village leaders locally called *Aba Ola* and women who represent external world in the two locations. Participants for group discussion and PRA were identified with assistance from the local Pastoral Development office staff and PA administrators. Each discussion and pair wise ranking exercise lasted 2:30-3:00 hours including tea breaks. Participants generally enjoyed the exercises and gave valuable time to take part.

Key Informant Interview (KI): Check list was prepared and key informant interview was conducted with selected livestock traders in both study areas. The points for the discussion included class of cattle demanded in the market, factors influencing demand and supply of cattle in the area, trend of cattle price and general marketing situation, available credit/loan access and any ongoing activities with regard to cattle marketing and major cattle marketing constraints in the area.

Methods of data analysis

The computer software Microsoft-excel was used for data managing. The SPSS statistical computer software SPSS for windows, version16.0 (SPSS, 2007) was used to analyze the data. The important statistical measures that were used to summarize the research data were t-test, percentages, frequencies, graphs, standard errors, chi-square, and correlation analysis. Descriptive statistical tools were employed to analyze the quantitative data. This method of data analysis was used in the process of examining and describing the scale/continuous data from the households and market surveys. T-test was carried out as appropriate to assess statistical significance between two locations (LMA and HMA) using two-tailed probability of the difference between the means in the process of examining the number of cattle sold and purchased per household and price of different category of cattle across the study area. In all cases 95% of alpha level was used in determining the significance level.

Categorical data were analyzed following the frequency procedures of SPSS version 16. Pearson's Chi-square tests was carried out to assess the statistical significance of paired comparisons of the frequency of distributions. It was used to assess effects of location or market access on pastoralist's marketing participation and their driving occasion for selling cattle, reason for particular market preference, pastoralists' purpose of selling cattle, frequency of market visit, access to market information and source of information. In this case X^2-values and Pearson probability values were taken to determine the significance.

The qualitative data from the group discussions, PRA, key informant interview and field observations during survey work were transcribed from field diaries in Afaan Oromo and then translated into English. The qualitative data were partly processed on spot during data collection to avoid forgetting. The implications of FGD exercises were also drawn to supplement the inferences of quantitative analysis.

Result and Discussion

Practice of cattle selling and buying in low and high market access areas:

As presented in Table 1, pastoralists located in HMA participated significantly ($P<0.05$) about 1.2 times and 3 times more in selling and purchasing cattle, respectively than their counterpart in LMA. Thus, this indicates that the majority of pastoralists placed in HMA actively participated in cattle buying than pastoralists located in LMA. Barrett *et al.* (2006) reported that in southern Ethiopia, areas with the best market access (Finchawa, Wachile and Didahara) are with the highest rates of household market participation. Hence, this report is analogous with

the present finding.

Table 1. Pastoralists' practice of selling and buying and driving occasions for selling cattle in LMA and HMA areas in Borana

	Low	High
Market participation	N=69	N=70
Selling N (%)	53(76.8)	63(90)*
Purchasing N (%)	8(11.6)	25(35.7)*
Driving occasions for selling N (%)		
When financial need arise	60(87)	45(64.3) *
When price become high	8(11.6)	21(30) *
During wet season	6(8.7)	12(17.1)
During dry season	10(14.5)	9(12.9)

Note: Numbers outside the parenthesis are number of respondents
*significant at P<0.05

As presented in Table 2, pastoralists located in HMA tended to sell significantly (P<0.05) about 1.4 times and purchased about 6 times more heads of cattle than their counterpart. Barrett *et al.*(2006) explained that households tend to sell livestock with greater frequency and in larger quantities than they buy animals. Pastoralists located in HMA reported that they visit market frequently and easily get market information and sold when the price become high and replaced with one or two young animals. Furthermore, they indicated that they were not worried about buyers since 5 to 6 years in their area following the opening of legal livestock export market. It was observed that once pastoralists satisfied cash need, they were not willing to sell extra animal even if the price become high.

Table 2. Number of cattle sold, purchased, time taken to nearest and farthest market in LMA and HMA areas in Borana

	Low (N=69)	High (N=70)
Parameters	Mean±SE	Mean±SE
Cattle sold	4.49±0.528	6.09±0.542*
Cattle purchased	0.12±0.039	0.73±0.14*
Time taken to the market		
Nearest market(hrs)	3.19±0.11	2.74±0.17*
Farthest market(hrs)	37.60±1.97	10.85±1.12*

Note: Numbers outside the parenthesis are number of respondents
*significant at P<0.05

Pastoralists Driving Occasions for Selling Cattle

As indicated in Table 1, significantly about 1.4 times more proportion of pastoralists located in LMA tended to sell cattle when financial need arises than HMA (Table 3**)**. It was observed that pastoralists were not tended to

participate in cattle selling process during wet season because during this time surplus milk is produced and pastoralists need for cash income is reduced.

Pastoralists located in LMA were likely to walk long distance significantly (P<0.05) more about 1.2 times hours to arrive at their nearby village or bush market, and this is extended to took them on average about 3.5 times more time to arrive at farthest market (Table 4**)**. The time taken to walk farthest market was varied from minimum of 6 hours to 84 hours, i.e. from half day walk to about a week. Pastoralists claimed that especially during feed shortage period their animals even die before arriving at the target market, in this case pastoralists are forced to spend additional money for transportation and other necessities beside loss of huge asset.

Pastoralists' reasons for selling cattle and particular market preference

The highest share of reasons for selling cattle for LMA and HMA were purchase of grain or food items and purchase of clothes (Table 3). Getachew *et al*. (2005) stated that pastoral communities in southern Ethiopia used to sell livestock when they were in desperate need of cash to buy grain or other household necessities. About 54.3% respondents (P<0.05) of HMA tend to sell for buying animal feed and for veterinary cost than LMA (29%); this was mainly due to the presence of better transportation, proximity to urban center and relative availability of private veterinary service.

Table 5 Pastoralists' purpose of selling cattle in LMA and HMA areas in Borana

	Low (N=69)	High (N=70)		
Parameter	N(%)[a]	N(%)[a]	X^2	P-value
Replace old stock	16(23.2)	27(38.6)	3.162	0.050
Cover school fee	36(52.2)	42(60)	0.864	0.353
Health fee	51(73.9)	48(68.6)	0.484	0.487
Income	16(23.2)	27(38.6)	3.849	0.050
Purchase food	65(94.2)	65(92.9)	1.493	0.474
Marriage	15(21.7)	25(35.7)	3.311	0.069
Buy cloth	63(91.3)	63(90)	0.070	0.792
Buy feed	36(52.2)	61(87.1)	20.151	0.000
Veterinary cost	20(29)	38(54.3)	9.147	0.002

[a]Percentages do not add up to 100% as respondents sold their animal for two or more purposes.
N represents number of respondents.

The results of this study indicated that 88.6% of HMA respondents visit different market in search of better price than their counterpart LMA (75.4%). However, about 13% of respondents located in LMA were forced to sale their cattle in the nearby village/bush market at low price due

to lack of market option in their area, while none was observed in HMA area.

Frequency of market visit, access to market information and source

Pastoralists located in LMA visited nearest market frequently for buying different commodities including food items and selling small stocks, and farthest market for selling livestock and meeting friends and relatives who live elsewhere locally called *walgayi guda* (means big assembly). In contrast, HMA pastoralists visited their nearby market to sell livestock, to buy different commodities and to get market information without having livestock to sell or buy and similarly to meet friends and relatives. All interviewed pastoralists located in HMA obtained market information before selling cattle than pastoralists located in LMA (89.9%). Significantly higher proportion of LMA (40.6%) pastoralists tended to acquire market information from friends or any other body who visited market than of HMA (24.3%). All interviewed pastoralists situated in HMA obtained information from their own market visit, and trader source of information (27.1%) also contributed and play considerable role. In general, pastoralists located in HMA had better reliable source of market information than LMA as all of the respondents visited market by their own before trekking their animal to the market, and this is advantageous for pastoralists to make decision and reduce unnecessary movement and energy loss by the animals, and save time wastage by herders which otherwise could have been used for other activities.

Number of cattle supplied and sold in Arero (LMA) and Haro bake (HMA) markets

The total number of cattle supplied to Arero (LMA) and Haro Bake (HMA) markets from October to December 2008 was 14,684 head of cattle. Of this, in terms of market share, Haro Bake market had the largest share of supply, i.e. 13,274 heads (90.4%). However, Arero market was offered only 1,410 heads (9.6%).

Table 6. Total numbers of different categories of cattle offered in Arero and Haro Bake markets from October to December 2008 representing LMA and HMA areas, respectively in Borana

Category	Arero market (Low)					Bake market (High)				
	Oct	Nov	Dec	Total	%	Oct	Nov	Dec	Total	%
Bull	70	82	64	216	15.3	758	1964	936	3658	27.6
Ox	28	47	38	113	8	428	143	531	1102	8.3
Cow	60	84	64	208	14.8	1133	1136	543	2812	21.2
Steer	72	144	126	342	24.3	1472	1342	305	3119	23.5
Heifer	68	98	70	236	16.7	273	458	146	877	6.6
Calf	79	132	84	295	20.9	342	975	389	1706	12.9

Total	377	587	446	1410	100	4406	6018	2850	13274	100
%	26.7	41.6	31.6	100		33.2	45.3	21.5	100	

From the total cattle supplied through Haro Bake market during the study period, the largest supply was bull followed by steer and cow (Table 4). Steer had received the highest percentage share of supply in Arero followed by calf. This was mainly pastoralists preferred to sale small stock in their nearby village or bush market, because small stock are unable to trek long distance and buyers prefer this stock for breeding purpose and resale. Moreover, the participants are local traders and producers. From the total number of cattle (14,684) that were brought for sale, about 12,613 head of cattle (85.9%) were sold. During this period, 11,373 (90.2%) were sold at Haro Bake market; however, only 1,240 head of cattle (9.8%) were sold in Arero market located in LMA.

Price of cattle in Arero and Haro Bake markets

As depicted in Table 3 all categories of cattle tended to carry significantly ($P<0.05$) higher market price in Haro Bake market i.e. located in HMA than that of Arero located in LMA. The present result is in agreement with the finding of Daniel (2008) who reported that Dubluk, Haro Bake and Moyale markets were identified as market routes that had relatively better cattle price.

Table 4. Average price of different category of cattle in Arero and Haro Bake markets, representing LMA and HMA, respectively in Borana from October to December 2008 (ETB)

Cattle category	Low		High	
	N	Mean ± SE	N	Mean ± SE
Bull	171	2551.5±39.81	263	2786.0±37.25*
Ox	81	1961.6±55.62	254	2304.0±33.41*
Cow	136	1160. 6±34.47	257	1333.5±28.21*
Heifer	188	998.2±15.57	252	1061.5±15.35*
Steer	203	1424.8±18.47	260	1500.2±19.62*
Male calf	131	831.0±18.6	253	898.7±13.97*
Female calf	111	707.7±14.07	258	749.7±10.54*

Note: N represents number of animals
*significant at $P<0.05$

The variation in cattle price across the study area might be due to relatively large number of livestock trader participation from central market, availability of asphalted road and better transportation service, and livestock market facilities and services and mobile access in HMA, which could increase competition level and thereby increase cattle price. Aklilu (2007) stated that market access affects price of the product and transaction costs and is influenced by infrastructure and information.

Pastoralists' conception of

constraints in marketing of cattle

Low cattle price, poor road and lack of transportation, few numbers of traders, conflict and lack of livestock marketing information system and market distance were exclusively the most important bottleneck of pastoralists located in LMA. Cattle price fluctuation and selling cattle with credit were solely the most important constraints of pastoralists located in HMA. It was stated that when traders and/or field agents faced financial constraint they collect cattle from producers with credit without any legal contract. If it is paid back, pastoralists were not getting their money on time and it might take them more than two to three months. Solomon *et al*. (2006) reported that the most prominent constraints that hinder sustainable market involvement by pastoral groups in southern Ethiopia occur at the interface between the sellers and field agents (buyers) for exporters. Problems in timely pick up of stock, and as well as difficulty in effecting payments soon after transactions, can create conflicts and reduce trust. Unlimited interference of brokers was found out to be a problem in both HMA and LMA areas, but more in LMA. Therefore, in order to build up fair trade and boost marketing participation of pastoralists in the area, broker interference need to be limited. Information obtained from key informant traders participated in LMA indicated that their activity in livestock marketing is constrained by lack of credit/loan. Eventhouh, they are supposed to provide their livestock as guarantee they could not access credit/loan in their area due to the nonexistence of credit/loan facility in their area. Therefore, finding ways to access credit/loan for local traders to assure livestock marketing development in the area is mandatory.

Recommendations/ Practical Implications

- Market access, market information and communication systems and cooperatives need to be developed to enable the pastoral households especially those remotely located benefit from the export business.
- Creating awareness and intensive follow up until pastoralists persuade and develop trust especially for pastoralists located in LMA area in relation to accessing market information before selling cattle, destocking of cattle prior to drought will help pastoralists to save their asset.
- Brokers' interference needs to be limited and attention should be given by policy makers. This can be achieved by improving access to market, which can increase direct contact between producers and traders/consumers, and establishing brokers' cooperative may help them to develop in to small scale traders which may further increase pastoralists marketing participation and off take
- Legal contract which enforce field agents and traders to pay credit timely for producers and local traders

have to be ascertained by policy makers

- Livestock markets are functioned only once per week, and pastoralists claimed that it is not enough as pastoralists from distance area unable to keep unsold animal until next market day or take back to home, as a result they are forced to sale with lower price. Hence, it is recommended that livestock market in HMA need to develop into at least twice per week as this reduces pastoralists' unnecessary cost and minimize sale of animal with low price.

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