Global Veterinaria 17 (2): 122-125, 2016
ISSN 1992-6197

DOI: 10.5829/idosi.gv.2016.17.02.10416

Study on Market Analysis of Mineral Soil Communally Consumed by Livestock's in the Case of Wolaita Zone, Ethiopia

[1]Muluken Zeleke, [2]Yisehak Kechero and [3]Mohammed Y. Kurtu

[1]Bonga Agricultural Research Centre, P.O. Box 101, Bonga, Ethiopia
[2]Department of Animal Sciences, Arba Minch University, P.O. Box 21, ArbaMinch, Ethiopia
[3]School of Animal and Range Sciences, Haramaya University,
P.O. Box 138, Dire Dawa Ethiopia

Abstract: The study was conducted in Wolaita zone, southern Ethiopia. The objective of the study was undertaken to describe constraints and opportunities of bole and makaduwa marketing system which are commonly used as mineral supplement for livestock in study area. Study is based on data from four major mineral soil markets and forty sample sellers which are selected randomly. Information regarding to purchasing patterns, attitudes and preference towards mineral soil, factors affecting price, challenges and threats of mineral soil trading, purchase practices, selling practices, transportation system was gathered from mineral soil traders using semi-structured questionnaire and visual observation. Marketing system of mineral soil is well recognized income source for traders and strongly benefits livestock production in the study area. About (67.5%, N=27) and (32.5%, N=13) of mineral soil sellers engaged in bole and makaduwa. About 50.74±12.38 and 28.46±9.66 numbers of buyers per market day participate in bole and makaduwa marketing, respectively. In average 55.56 Kg of bole and 23.86 Kg of makaduwa sold per market day. Rainfall is major factor which affect price of mineral soil. During the wet season price of bole (4.04±0.19 ETB) and makaduwa (6.81±0.25 ETB) is significantly higher than the price of bole (2.78 ±0.25 ETB) and makaduwa (4.85±0.24 ETB) in dry season. Poor mineral soil marketing infrastructure and system should be improved. In addition, policy decision to assurance of standards and marketing is vital to socioeconomic importance of mineral soil. It is hoped that the finding of this study help for further research and development intervention.

Key words: Bole · Makaduwa · Wolaita · Marketing

INTRODUCTION

Ethiopia is believed to have the largest livestock population in Africa [1]. This livestock sector has been contributing considerable share to the national economy of the country, for instance through export commodities of live animals, hides and skin to earn foreign exchange to the country. However, livestock productivity is very low and lags behind the growth of human population leading to a net decline in per capita consumption of livestock products [2].

Mineral deficiencies are considered to be one of the nutritional constraints to animal productivity. Local mineral deficiencies and imbalances are likely to become more apparent and more critical [3]. Mineral imbalances (deficiencies or excesses) in soils and forages have long been held responsible for low production and reproductive problems among grazing ruminants in the tropics. Poor body conditions, slow live weight gain, low fertility and high mortality are normally observed in mineral-deficient animals [4].

Feeds, mineral soils and water are the major mineral sources in Ethiopia, Miles and McDowell [4] reported that overgrazed pastures in Ethiopia are deficient in Calcium (Ca), Phosphorus (P), Sodium (Na), Zinc (Zn), Copper (Cu), cobalt (Co), sulfur (S) and selenium (Se), but their Iron (Fe) and Magnesium (Mn) levels are too high.The animals must be supplied with a diet that is palatable and non-toxic which contain the required minerals, as well as other nutrients, in adequate amounts, proper proportion and available forms [5].

Corresponding Author: Muluken Zeleke, Bonga Agricultural Research Centre, P.O. Box 101, Bonga, Ethiopia.

Bole (An Ethiopian name for soil lick) is one of widely spread resource, cheap and well licked by animals once they accustomed to it. *Makaduwa* is also a type of lick soil used in Wolaita Zone, Southern part of Ethiopia as mineral supplementation to livestock's. In study area farmers obtain this mineral soil from soil lick area and purchasing from local markets. Due to remoteness of soil lick source most of the farmers purchase from markets.

Mineral soil supplementation is crucial to livestock productivity and its marketing is important source of income. Supplementation of mineral soil *bole* and *makaduwa* increase dry matter intake [6]. According to Muluken *et al*. [6], dietary inclusion of mineral soil increase digestibility of dry matter, organic matter, crude protein and enhance live weight gain of sheep. Despite the huge potential of mineral soil, vital function and long trend of marketing, it has not been studied, fully exploited and promoted in the country. A number of factors such as absence of vital information have contributed to un-exploitation mineral soil socio economic advantages. Systematic identification of constraints and opportunities of mineral soil marketing is increasingly an important component to improve marketing system, promote commercialization, improve income, create job opportunities, alleviate unemployment and for intervention purpose. Therefore this study was planned to undertake the following objectives;

Objectives

General Objective: To assess the marketing system of *bole* and *makaduwa* in major markets of mineral soil in Woliata zone

Specific Objective:

- To identify opportunities and constrains of mineral soil marketing system
- To assess factors affecting price of mineral soil

METHODS

Study Area: The study was conducted in Wolaita zone which is located 390km southwest of Addis Ababa. To conduct formal survey with mineral soil traders, four major markets (Humbo, Gesuba, Bakulo Sagno and Soddo town) selected on the basis of mineral soil marketing trends. To collect data from each major markets, ten mineral soil sellers totally 40 sellers randomly selected.

Methods of Data Collection: To characterize marketing systems in the study district the major data collection methods used include discussions with key informant and focus groups, rapid market appraisal, observation, formal survey and visual aids. The preliminary visits were made prior to questionnaire development which is pertinent to the objectives of the study. The questionnaire contained many open-ended questions that allowed the respondents to express their opinions on various issues are presented in descriptive statistics. For the field survey, the method of data collection was single-visit-multiple-subject survey (ILCA,1990) [7]. Information regarding to purchasing patterns, attitudes and preference towards mineral soil, attitudes and perceptions towards price, challenges and threats of mineral soil trading, purchase practices, selling practices, transportation system was gathered from mineral soil traders using semi-structured questionnaire.

Statistical Data Analysis: The survey data (Both quantitative and qualitative data) was collected and entered into Microsoft office Excel sheet every day after administering questionnaire to prevent loss of data. All the surveyed data were analyzed using statistical package for social sciences (SPSS, version 20). Statistical variations for categorical data was tested by means of cross tabs, with significant $P \leq 0.05$ differences at while the descriptive statistics for the numerical data were subjected to one way analysis of variance (One-way ANOVA) using the general linear model procedure of SPSS. Mean comparisons were carried out using least significant difference (LSD). Levels of significance also considered at $P \leq 0.05$. Analyzed data were presented using tables, figures, percentages, means and standard errors.

RESULTS AND DISCUSSION

Location and Transportation of Mineral Soil: Location and transportation of mineral soil in the study area is presented in Table 1. About (67.5 %, N=27) and (32.5%, N=13) of mineral soil traders engaged in *bole* and *makaduwa,* respectively. Accordingly, they get mineral soil (*Bole* and *makaduwa)* freely from Abala Gurucho and Aje area by travelling 25.93 km and 58.31 km, respectively. The mineral soil *bole* is located at around Lake Abaya and *makaduwa* is occurring near the lake sides in the caves. Because of poor road infrastructure and distance to mineral soil location, all bole traders (N=27) use donkey to

Table 1: Location and transportation system of mineral soil in study areas

		Source Location				Means transportation		
Mineral soil		A/Gurucho	Aje	Mean distance (Km)	Donkey	Car	Both	Total
Bole	%	67.5	0.0	25.93[b]	67.5	0.0	0.0	67.5
Makaduwa	%	5.0	27.5	58.31[a]	10.0	7.5	15	32.5

Table 2: Percentage of mineral soil major markets of in the study areas

	Markets				
	A/Qulshubo	Bakulosagno	Gesuba	Humbo	Soddo
Mineral soils	%	%	%	%	% Sig
Bole	45.0	55.5	52.5	67.5	17.5 **
Makaduwa	10.0	22.5	30.0	32.5	7.5 **
Total	55.0	78.0	82.5	100	25.0 **

The percentage is based on respondents; one trader may participate in four markets.

transportations from Abala Gurucho. About 10%, 7.5% and 15% of *makaduwa* traders use donkey, car and both of them, respectively from Abala Gurucho (5%) and Aje (27.5%). The availability of transport network and trucks is an important element for the movement of products from the point of collection to the point of consumption. Transport creates place utility; create balances between surplus and deficit areas.

Major Local Markets of Mineral Soil: Table 2 presents the percentage of mineral soil seller's participation in markets of the study areas. There is statistically significant difference in participation of sellers between markets. Respondents pointed out that Humbo, Abala Qulishubo, Bakulo Sagno, Gesuba and Soddo markets are major places for *bole* and *makaduwa* marketing. Bakulo Sagno, Gesuba and Soddo markets are neighbors to study *woreda*. Among above mentioned major markets Humbo and Gesuba were well known than other markets in mineral soil marketing. According to sellers, this is due to strong farmer's awareness to importance of mineral soil and high potential to livestock production. In Soddo town market, there is small participation of sellers when compared with other markets; this is due to low livestock production in urban area when compared with other rural area markets. It was observed that *bole* found in sufficient volume according to demand when compared with *makaduwa*. According to respondents this was because of high distance to location and scarcely found in source site of *makaduwa* when matched with *bole*. Regarding to large markets, Gesuba and Humbo there were about 30% and 32.5% of *makaduwa*, respectively.

Table 3: Price and amount of mineral soil in different season in study area (N=40)

	Bole		*Makaduwa*	
	Mean±SD	SL	Mean±	SD SL
Numbers of buyer	50.74±12.38		28.46±9.66	
Amount sold	55.56±17.39		23.85±7.12	
Price at dry season	2.78 ±0.25[b]		4.85±0.24	
Price at wet season	4.04±0.19[a]	S**	6.81±0.25	S**

S=season; SL= significant level; Price is in ETB.

Prices of Mineral Soils: Table 3 summarizes numbers of buyer, amount of sold and price of *bole* and *makaduwa* in dry and wet season. About 50.74±12.38 and 28.46±9.66 numbers of buyers per market day participate in *bole* and *makaduwa* marketing, respectively. The assessment further indicated that in average 55.56±17.39 kg of *bole* and 23.85±7.12 kg of *Makaduwa* sold per market day. According to all traders rainfall is their major constrains related with *bole* and *makaduwa* marketing. During the wet season due to rainfall the soil is eroded. Due to this fact during wet season price is significantly increase ($P<0.001$) from 2.78±0.25 to 4.04± 0.19 (ETB) per kg bole and from 4.85±0.24 to 6.81±0.25 (ETB) birr per kg *Makaduwa*. The high cost of *Makaduwa* related with scarcely found in source and long distance of site.

CONCLUSION

The study was conducted in Wolaita Zone, Southern Ethiopia in four major markets of mineral soil bole and makaduwa to assess the trend of marketing bole and makaduwa, constraints and opportunities in marketing system. From selected markets totally 40 sellers randomly

selected and data regarding to location of mineral soil source, transportation system, factor affecting price were collected by group discussion, structured questioners and visual observation.

Marketing system of mineral soil is well recognized income source for traders and strongly benefits livestock production in the study area. About (67.5%, N=27) and (32.5%, N=13) of mineral soil sellers engaged in bole and makaduwa. About 50.74±12.38 and 28.46±9.66 numbers of buyers per market day participate in bole and makaduwa marketing, respectively. In average 55.56 Kg of bole and 23.86 Kg of makaduwa sold per market day. Rainfall is major factor which affect price of mineral soil. During the wet season price of bole (4.04±0.19 ETB) and makaduwa (6.81±0.25 ETB) is significantly higher than the price of bole (2.78 ±0.25 ETB) and makaduwa (4.85±0.24 ETB) in dry season.

Although there were several studies focused on various commodity marketing system, however no known studies focus on socioeconomic part of mineral soil bole and makaduwa. Therefore planned and strategic study should be conducted on market route, socio economic impact of mineral soil for further development issues and income generating activity for the region.

REFERENCES

1. FAO (Food and Agriculture Organization), 2005. Food and global information and early warning system on food and agricultural world food program. www.fao.org/ docrep/007 /J3958e/html.
2. Shawel Bertu and H. Kawshima, 2009. Pattern and determinants of meat consumption in urban and rural Ethiopia. Dissertation in department of Global Agriculture, Graduate School of Agriculture and Life Sciences, the University of Tokyo, pp: 216.
3. Suttle, N.F., 1991. Mineral supplementation of low quality roughages. In: Proceedings of Symposium on Isotope and Related Techniques in Animal Production and Health. International Atomic Energy Commission, Vienna, pp: 101-104.
4. Miles, E.H. and L.R. McDowell, 1983. Mineral deficiencies in the Llanos rangelands of Colombia. World Animal Review, 46: 2-10.
5. McDonald, P., R.A. Edward, J.F. Greanhalgh and C.A. Morgan, 2002. Animal nutrition. 6th ed. Ashford color press, Gosport, pp: 693.
6. Muluken Zeleke, K. Yisehak and Y. Mohammed, 2015. The Comparative Nutrient Utilization and Economic Efficiency of Mineral Supplements with Concentrates in Sheep. IDOSI Publications European Journal of Applied Sciences, 7(5): 226-234.
7. ILCA (International Livestock Center for Africa), 1990. Annual Program Report. ILCA Addis Ababa, Ethiopia.