

DEDICATION

To the Great Prophet Mohammed

To the soul of my Father

To my Mother, my Brothers and Sisters

To my colleagues and friends to my supervisors

For all those I dedicate this humble work.

ACKNOWLEDGMENT

I express my praise and faithful thanks to Allah for uncountable gifts, and completion of this work. Special and deep thanks to my supervisors Dr. Abdelaziz Abdelfattah Hashim and Prof. Babo Fadlalla for useful suggestions, valuable advice and sincere interest during the whole period of this research.

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ABSTRACT

The study aimed to analyze pastoralists' perception towards rangeland resources, livestock products and livestock marketing in the Butana area of Sudan.

The study was conducted during the period from first of July to September 2011. A random sample of 407 pastoralists/ household was selected from Central Butana area and livestock watering points which are sites visited by pastoralists.

Furthermore, 222 livestock traders were interviewed in the surveyed livestock markets. Interviews were also held with pastoralists and officials concerned with range management. Both descriptive statistics and econometric methods were used for data analysis. Logit model was employed to identify the socioeconomic and climatic factors that influence pastoralists' perception on natural rangeland resources. Also Ordinary Least Square (OLS) was used to investigate the perception and awareness of pastoralists towards livestock marketing and products. Logit was used to analyze the structure, conduct and performance of livestock markets in the study area.

The results indicated a negative relationship between dry season, herd size (number of heads), soil erosion, expansion of agriculture and improved rangeland. Positive and significant ($P < 0.001$) relationship was found between open fire lines and improved rangeland condition. The study also found that reseeded could have positive influence on improved rangeland, but the coefficient was not statistically significant.

The result revealed that purpose of livestock keeping, distance to livestock market, lack of market information and lack of decision on market participation had negative and significant effect on livestock marketing and products.

The study also showed that poor infrastructure, high transaction cost, prices and lack of access to credit had negative and significant influence on the structure, conduct and performance of livestock markets.

The study recommended that rangeland should be improved by reseeded, opening of fire lines, water harvesting, maintenance of *hafirs*, and restriction of expansion of agriculture on the rangeland. Protection of rangeland needs to be backed by extension. Milk industry and marketing channels of milk should be improved by relevant government sectors and encouraging producers (high price) to sell their livestock at younger age. Development of infrastructure and other market services to improve structure, conduct and performance of livestock markets in the study area are also recommended. There is a need for an effective market information system to inform producers about current prices. Further research on identification of pastoralists' perception towards rangeland resources, products and livestock markets need to be conducted.

ملخص الدراسة:

أجريت هذه الدراسة في منطقة البطانة في السودان. تهدف إلى تحليل سلوك الرعاة نحو موارد المراعي ومنتجات الثروة الحيوانية والأسواق.

أجريت الدراسة خلال الفترة من الأول من يوليو إلى نهاية سبتمبر 2011. وقد تم اختيار (407) من الرعاة كعينة عشوائية من خلال وسط البطانة ونقاط المياه التي يستخدمها الرعاة لسقي الماشية. كما تم استخدام استبيان منفصل لم قابلة عدد 222 من تجار الماشية في أسواق الثروة الحيوانية. وتمت مراجعة المصادر الموثوقة وتم عقد عدد من مجموعات النقاش مع المواطنين والمسؤولين بما يختص بإدارة واستغلال هذه المراعي.

تم استخدام الاحصاء الوصفي و نماذج الاقتصاد القياسي لتحليل البيانات. كما استخدم النموذج اللوجستي Logit model للتعرف على تصور الرعاة للعوامل الاجتماعية والاقتصادية والمناخية التي تؤثر على المراعي الطبيعية، وأيضاً تم استخدام نموذج الانحدار الخطي المتعدد طريقة المربعات الصغرى ((OLS Ordinary Least Square لتحليل إدراك و وعي الرعاة نحو تسويق الحيوانات ومنتجاتها وأيضاً تم استخدام Logit model و (SCP) لتحليل أداء أسواق الثروة الحيوانية في منطقة الدراسة.

أكدت النتائج أن هناك تأثيراً سلبياً على العلاقة بين موسم الجفاف، وحجم القطيع، وتعرية التربة، والتوسع في الزراعة وتحسين المرعي. وأن هناك تأثيراً إيجابياً ومعنوياً ($P < 0.001$) بين فتح خطوط النار وتحسين حالة المرعي. وأوضحت الدراسة أيضاً أن نثر البذور يؤثر تأثيراً إيجابياً على تحسين المراعي.

أوضحت الدراسة أن الغرض من تربية المواشي، المسافة إلى سوق الماشية، والإفتقار إلى المعلومات عن الأسواق لها تأثيراً سلبياً وبشكل كبير على تسويق الثروة الحيوانية ومنتجاتها.

كما أوضحت الدراسة أن ضعف البنية التحتية وإرتفاع تكاليف المعاملات والأسعار والإفتقار إلى الإئتمان تؤثر سلباً على سلوك وبناء وأداء أسواق الثروة الحيوانية. واقترحت الدراسة صناعة وتسويق الألبان وذلك من قبل القطاعات الحكومية ذات الصلة والقطاع الخاص، وتشجيع المنتجين (سعر أعلى) لبيع الحيوانات في سن صغيرة وهذا يوفر طاقة استيعاب أفضل للمرعى بدلاً من الإحتفاظ بالحيوانات لسن كبيرة، وتطوير البنية التحتية وخدمات السوق الأخرى وتحسين أداء أسواق الماشية في منطقة الدراسة والحاجة إلى وجود نظام معلومات للأسواق فعال لتنوير المنتجين عن الأسعار، وبحوث أخرى بحاجة إلى أن تتم عن الرعاة وسلوكهم تجاه موارد المراعي والمنتجات وأسواق الثروة الحيوانية.

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ABBREVIATIONS AND ACRONYMS

ALRMP	Arid Lands Resource Management Project
ARSC	Animal Resources Service Company
EARO	Ethiopian Agricultural Research Organization
ELCI	Environmental Liaison Centre International
FAO	Food and Agriculture organization
IFAD	International Fund for Agricultural development
IGAD	Intergovernmental Authority on Development
ILCA	International Livestock Centre for Africa
ILRI	International Livestock Research Institute
ITCZ	Intertropical convergence zone
LRT	Land Restoration Training Programme
MAF	Ministry of Agriculture and Forestry
MARF	Ministry of Animal Resources, Fishers and Range

MLE	Maximum Likelihood Estimation
MOAF	Ministry of Agriculture and Forestry
MOST	Ministry of Science and Technology
NRCS	Natural Resources Conservation Service
NWC	National Water Corporation
OLS	Ordinary Least Square
RAP	Rural Access Project
SCARM	Standing Committee on Agriculture and Resource Management
SCP	Structure, Conduct and Performance
SPSS	Statistical Package for Social Science
TSMCR	Tropical Savannas (Management) Cooperative Research Centre
C	
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
VIF	Variance Inflation Factors
<i>Haboob</i>	Summer dust storms
<i>Hafir</i>	Man excavated pool that is filled by water from rain and running khors for dry season use of man and animals
<i>Khalwa</i>	Pre-school education essentially teaching the Holy Koran
<i>Khor</i>	Seasonal water course that is filled with running water after heavy rain storms
<i>Maya'at</i>	Catchment areas
<i>Rawda</i>	Kindergarten
<i>Turus</i>	A traditional method of earth embankment used to harvest rain water
<i>Wadi</i>	A seasonal water course