

# FACTORS AFFECTING PASTURE CONSERVATION PRACTICES AMONG DAIRY CATTLE FARMERS IN NAMUTUMBATOWN COUNCIL, NAMUTUMBA DISTRICT



BY

KIIRYA AGGREY

BU/UG/2012/1851

kiiryaaggrey@gmail.com

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF ANIMAL PRODUCTION AND MANAGEMENT IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR AWARD OF A BACHELOR DEGREE.

SEPTEMBER, 2015

## DECLARATION

I Kiirya Aggrey_hereby declare that this dissertation is out of my original concept and has never
been submitted to any University or institute of higher learning for any academic award.
Signature Date 2 <sup>nd</sup> 9 2015
This dissertation has been submitted after the approval of my Supervisor:
Dr. Zirintunda Gerald
Department of Animal Production and Management
Faculty of Agriculture and Animal Sciences
Busitema University
Signature

CLASS NO. ACCESS NO. A

# DEDICATION

I dedicate this dissertation to my father, Baziriyo Zirigwa, mother, Naigaga Elizabeth and brother, Ndifuna Salleh.

#### ACKNOWLEDGEMENT

I take this opportunity to utter my gratitude to the Almighty God for the gift of life all through.

I also acknowledge the worthy efforts by Dr. Zirintunda Gerald and my beloved lecturers for the knowledge rendered; all my friends and colleagues who were always there for me in case of any help.

# TABLE OF CONTENTS

DECLARATIONi
DEDICATIONii
ACKNOWLEDGEMENTiii
TABLE OF CONTENTSiv
LIST OF FIGURES AND TABLESviii
ABSTRACTix
CHAPTER ONE1
1.2 Problem statement
1.3 Overall objective2
1.4 Specific objectives
1.5 Research Questions
1.6 Significance
1.7 Justification
1.8 Scope4
1.9 Definition of key words4
CHAPTER TWO: LITERATURE REVIEW5
2.1 Conceptual Framework5
2.2 Cattle in Uganda5
2.3 pasture production6
2.4 Silage and hay making7
2.5 Factors affecting the practice of pasture conservation8
2.6 Level of education and pasture conservation practices
2.7 Gender of household and pasture conservation practices

CHAPTER THREE: MATERIALS AND METHODS	12
3.1 Study area	13
3.2 Research approach	13
3.3 Sampling design	13
3.4 operational designs	14
3.4 Statistical design	15
3.5 Data presentation	15
3.6 Ethical consideration and environment consideration	
CHAPTER FOUR: RESULTS	16
4.1 Marital statuses of the respondents	16
4.2 Sex of the respondents	16
4.3 Land, labor and household size as affecting factors to pasture conservation.	16
4.6 Relationship between pasture conservation and the levels of education of the	:
respondents	17
4.7 Relationship between pasture conservation practices and the gender of the	
respondents.	18
4.8 Age of respondents	20
4.8 Age of respondents	
	20
4.9 Occupation of the respondents	20
4.9 Occupation of the respondents	20
4.9 Occupation of the respondents  4.10 Aware of pasture conservation practices  4.11 Forms of pasture conserved	20 20 20
4.9 Occupation of the respondents  4.10 Aware of pasture conservation practices  4.11 Forms of pasture conserved  4.12 Sources of pasture conserved	20202020
4.9 Occupation of the respondents 4.10 Aware of pasture conservation practices 4.11 Forms of pasture conserved 4.12 Sources of pasture conserved 4.13 Size of land owned	2020202020
4.9 Occupation of the respondents  4.10 Aware of pasture conservation practices  4.11 Forms of pasture conserved  4.12 Sources of pasture conserved  4.13 Size of land owned  4.14 Land allocated for planting pasture	202020202020

CHAPTER FIVE: DISCUSSION	22
CHAPTER SIX; CONCLUSIONS AND RECOMMENDATIONS	26
6.1 CONCLUSIONS	26
6.2 RECOMMENDATIONS	26
APPENDICES	27
REFERENCES	32

## LIST OF ABBREVIATIONS

IFAD International Funds for Agricultural Development

NARO National Agricultural Research Organization

NGOs Non Government Organizations

FAO Food Agricultural Organization

UBOS Uganda Bureau of Statistics

GDP Gross Domestic Products

# LIST OF FIGURES AND TABLES

Figure 1: A conceptual framework of pasture conservation practices5
Figure 2: Illustrating factors affecting pasture conservation
Figure 3: Level of education
Figure 4: Shows a map of Namutumba town council, Namutumba district as the study area27
Figure 5: Map of Uganda showing Namutumba district28
Table 1: Factors affecting pasture conservation16
Table 2: Relationship between pasture conservation and the level of education of the respondents
Table 3: Relationship between pasture conservation and gender18

#### ABSTRACT

Dairy production across the East African sub-region is characterized by a critical challenge of feed inadequacy quantitatively and qualitatively which would have alternatively been tackled by pasture conservation in times of plenty. A study was carried out in Namutumba town council to establish factors affecting pasture conservation practices among dairy cattle farmers with special emphasis on the factors and relationship between education levels and gender of household heads with pasture conservation practices. The data on the major challenges to pasture conservation included; 21% respondents lacked advisory services and support policy, finance and age (8%) and land, labor and household size (71%). One hundred (100) respondents were purposively selected using closed ended questionnaires and statistical package for social sciences used as analytical tool. It was noted that standing hay (81% of the respondents) obtained from natural pastures (54% of the respondents) was the major conservation form. The study found out that there is no significant relationship between pasture conservation and the gender of the respondents (p>0.05) and no significant relationship between pasture conservation and the level of education of the respondents (p>0.05). Some cultures not allowing some genders like women to do particular activities and a gap for accessing assets were considered as major reasons for lack of relationship between gender and pasture conservation. Poorly educated people are limited in terms of access to information that could help them implement new practices and primary education being the elementary Level of education could not allow them to understand the existing problem and then think about the solution were the reasons cited for lack of relationship between level of education and pasture conservation. More women should be encouraged to get involved in pasture conservation, practice and use of baled hay, silage and industrial by-products in addition to standing hay to overcome land shortage, need for a policy to regulate pasture conservation and broadened content and coverage of extension service especially, trainings to address issues about pasture conservation are the recommendations that were put forward.

#### CHAPTER ONE

#### 1.1 Background

Small- scale dairy production system, all over the world, is primarily based on pasture. Grazing lands cover small area of the earth's surface mostly during the crop season and rarely provide adequate in both quantity and quality year-round feed to support highly productive livestock. This is particularly true of the grasslands of the seasonally-dry tropics, where annual rainfall may be concentrated in a few days of the hot season and the mature forage is of low nutritive value(Suttie, 2000, Sidahmed, 2001).

Provision of feed for deficit seasons is always made to improve agricultural production. When livestock are adequately fed in the dry season, their output increases, they are fit for draught and more dung is available for fertility recycling. For example; United States manages pasture scarcity during the dry season by feeding one-third of the daily dry matter of long-stem grass hay before grazing(Rinehart, 2008) and Ethiopia feeds dairy cattle on conserved natural pasture hay (Feyissa et al.,).

Dairy production across the East African sub-region is characterized by challenges of feed inadequacy (quantity and quality) which is the most critical. Almost year round, it relies heavily on low quality feeds. The dairy sector in Eastern Uganda is composed of smallholder farmers who keep about 1-3 head of cattle on small pieces of land, usually about 2acres and often under a mixed crop-livestock production system. Smallholder farmers own over 90% of the national herd of about 7.5 million cattle. These farmers are mainly characterized by mixed crop-livestock farming(Wozemba & Rashid, 2008). Uganda has attained visible impressive GDP growth rates averaging to about 7% per annum since the 1990s in terms of economic performance, remaining the main source of employment to nearly 66% of Uganda's labor force. It has also contributed a constant positive growth rates, averaging 3% per annum, partly driven by the dairy sector. Dairy contributes about half of the total livestock GDP, which in turn contributes nearly 20% of the total agricultural GDP (Mbowa et al., 2012). However, in Uganda, particularly Namutumba, smallholder dairy farming is affected by poor quality and quantity of feeds as impeding variables for high productivity (Mwamuye, et al., 2013).

#### REFERENCES

- Aksoy, A., Külekçi, M., & Yavuz, F. (2011). Analysis of the factors affecting the adoption of innovations in dairy farms in Erzurum Province, Turkey. African J. Agric. Res, 6(13), 2966-2970.
- Ali, T. (2010). Shortage of quality livestock fodder.
- Ashley, C., & Maxwell, S. (2001). Rethinking rural development. Development policy review, 19(4), 395-425.
- D D Maleko, M. L. K. (2015). Opportunities and constraints for overcoming dry season livestock feed shortages in communal semi-arid rangelands of Northern Tanzania. *Livestock Research for Rural Development*.
- D'Souza, G., Cyphers, D., & Phipps, T. (1993). Factors affecting the adoption of sustainable agricultural practices. Agricultural and Resource Economics Review, 22(2), 159-165.
- Dishman, R., Heath, G., & Lee, I.-M. (2004). Physical activity epidemiology: Human Kinetics.
- District, N. (2009). Higher local government statistical abstract, Namutumba district
- Eddy, B., Roessali, W., & Marzuki, S. (2012). Dairy cattle farmers'behaviour and factors affecting the effort to enhance the economic of scale at getasan district, semarang regency. *Journal of the Indonesian Tropical Animal Agriculture*, 37(1), 34-40.
- FAO. (2005). rural women and food security in Asia and the Pacific, Prospects and paradoxes.
- Feyissa, F., Prasad, S., Assefa, G., Kitaw, G., & Bediye, S. The status of production, conservation and utilization of natural pasture hay for feeding dairy cattle in the greater Addis milkshed, central highlands of Ethiopia.
- Glover, E. K., Ahmed, H. B., & Glover, M. K. (2013). Analysis of Socio-Economic Conditions Influencing Adoption of Agroforestry Practices. *International Journal of Agriculture and Forestry*, 3(4), 178-184.
- IFAD. Feed Blocks: a strategic alternative supplement for small ruminants raised within croplivestock systems under semi-arid condition. 4 Season company pty ltd.
- J.F. Shanahan, D. H. S., T.L. Stanton and B.E. Horn (Ed.). (2004). Production Crop Residues for Livestock Feed.

- Jenkins, A. R. (2009). Precision Farming Information Sources Used by Cotton Farmers. *Masters Theses*, 532.
- Jera, R., & Ajayi, O. C. (2008). Logistic modelling of smallholder livestock farmers' adoption of tree-based fodder technology in Zimbabwe. *Agrekon*, 47(3), 379-392.
- Johnson, R. J., Doye, D., Lalman, D. L., Peel, D. S., Curry Raper, K., & Chung, C. (2010).
  Factors affecting adoption of recommended management practices in stocker cattle production. *Journal of Agricultural & Applied Economics*, 42(1), 15.
- Kabwe, G., Bigsby, H., & Cullen, R. (2009). Factors influencing adoption of agroforestry among smallholder farmers in Zambia.
- Kimaro, E., & Lyimo-Macha, J. (2014). Gender Roles in Small Holder Dairy Farming: Pertinent Issues on Access and Control over Dairy Farming in Arumeru District, Tanzania. *Journal of Culture, Society and Development*, 3, 30-35.
- King, A. (2002). Joint donor agencies study on the performance of and growth prospects for strategic exports in Uganda. Case study: livestock, hides, skins, and leather products:

  Delegation of the European Commission.
- L.Hove et al. (Ed.) (1999).
- Lugandu, S., Dulla, H., Ngotio, D., & Mkomwa, S. (2012). The extent of adoption of conservation agriculture with trees by smallholder farmers in Tanzania.
- Mbowa, S., Shinyekwa, I., & Lwanga, M. M. (2012). Dairy sector reform and transformation in Uganda since the 1990s. *EPRC*, *Uganda*.
- McBride, W. D., & Daberkow, S. G. (2003). Information and the adoption of precision farming technologies. *Journal of Agribusiness*, 21(1), 21-38.
- Minot, N., & Ngigi, M. (2004). Are horticultural exports a replicable success story?: evidence from Kenya and Côte d'Ivoire: Intl Food Policy Res Inst.
- Mlote, S. N., Mdoe, N. S., Isinika, A. C., & Mtenga, L. A. (2013). Factors Affecting Agro-Pastoralist and Pastoralists' Willingness to Adopt Beef Cattle Fattening in the Lake Zone in Tanzania. *Journal of Agricultural Science*, 5(10), p140.
- Mugerwa, S., Kabirizi, J., Njarui, M., & Mpairwe, D. (2012). Utilization of introduced forages by smallholder dairy farmers in Uganda. *International Journal Bioscience*, 2, 36-45.

- Mutambara, J., Dube, I., & Mvumi, B. (2012). Agroforestry technologies involving fodder production and implication on livelihood of smallholder livestock farmers in Zimbabwe. A case study of Goromonzi District. Livestock Research for Rural Development, 24(11).
- Mwamuye, M. K., Kisimbii, J., & Otieno, D. M. (2013). Factors Influencing Adoption of Dairy Technologies in Coast Province, Kenya. *International Journal of Business & Commerce*, 2(7).
- Mwebaze, S. M. (2002). Country pasture/forage resource profiles. Grassland and pasture crops.
- Neopane, S. P. (2005). Importance of fodder to reduce the cost of milk production in farmers' perspective.
- Newman, Y. C., Lambert, B., & Muir, J. P. (2009). *Defining forage quality*: SS-AGR-322. Dep. of Agron., Univ. of Florida, Gainesville.
- Ngoze, S., Riha, S., Mbugua, D., Shepherd, K., Verchot, L., Barrett, C. B., et al. (2008). The Impacts of Household Land Use and Socio Economic Factors on the Soil Fertility of Smallholder Farms in the Highlands of Kenya. Available at SSRN 1141986.
- Njarui, D., Kabirizi, J., Itabari, J., Gatheru, M., Nakiganda, A., & Mugerwa, S. (2012).

  Production characteristics and gender roles in dairy farming in peri-urban areas of
  Eastern and Central Africa. Livestock Research for Rural Development, 24(7), 2012.
- Njwe, R., Kwinji, L., Gabche, A., & Tambi, E. (2001). Contributions of Heifers Project International (HPI) to small-scale dairy development in Cameroon. Paper presented at the Proc. South-South workshop Smallholder dairy production and marketing, opportunities and constraints, Anand, India.
- Popp, M. P., Faminow, M. D., & Parsch, L. D. (1999). Factors affecting the adoption of valueadded production on cow-calf farms. *Journal of Agricultural and Applied Economics*, 31, 97-108.
- Puszczak, K., Fronczyk, A., & Urbański, M. (2013). Analysis of sample sizein consumer surveys.
- R.M. Njwe, L. N. K., A.L. Gabche and E.N. Tambi. (1984). Contributions of Heifer Project International (HPI) to small-scale dairy development in Cameroon. Organization of Africa Unity/Inter African Bureau of Animal Resources.

- Resnik, D. B. (2010). What is ethics in research & why is it important. Research Triangle Park, North Carolina: National Institute of Environmental Health Sciences/National Institute of Health.
- Rinehart, L. (2008). *Ruminant nutrition for graziers*: National Sustainable Agriculture Information Service (ATTRA).
- Saleem, M. A., Jan, F. A., Qureshi, M. I., & Khattak, L. Linking financial market and farm & farmers' features for adoption of new farm technology a case study of di khan district of Khyber pakhtun khawa (Pakistan).
- Sidahmed, A. (2001). Rangeland development for the rural poor in developing countries: the experience of IFAD. Response to land degradation.
- Suttie, J. M. (2000). Hay and straw conservation: for small-scale farming and pastoral conditions: Food & Agriculture Org.
- UBOS, M. (2008). The national livestock census report.
- Wambugu, C., Franzel, S., Cordero, J., & Stewart, J. (2006). Fodder shrubs for dairy farmers in East Africa: Making extension decisions and putting them into practice. World Agroforestry Centre (ICRAF), Nairobi, Kenya; and Oxford Forestry Institute: Oxford, UK.
- Wattiaux, M. (1999). Introduction to Silage-Making. Dairy Updates. Feeding(502).
- Wiskerchen, J. (2012). Growing Sprouted Fodder for Livestock.
- Wozemba, D., & Rashid, N. (2008). Dairy investment opportunities in Uganda-report. SNV Report.