EVALUATION OF CLIMATE CHANGE ADAPTATION STRATEGIES: A CASE OF GREENHOUSE TOMATO PRODUCTION AMONG SMALLHOLDER FARMERS, NAKURU COUNTY

BY

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A thesis submitted to the Graduate School in partial fulfilment for the requirements of the award of Master of Science Degree in Agricultural Economics of Egerton University

EGERTON UNIVERSITY

April, 2014
DECLARATION AND APPROVAL

1. DECLARATION
I hereby declare that this is my original work and has not been presented in this or any other university for the award of any degree.

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2. APPROVAL
This work has been submitted with our approval as University supervisors.

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DEDICATION

My husband Thomas Kirui and my children: Faith, Mercy, Patrick, Benedict and Miriam. Thank you for your inspiration, encouragement and prayers, and especially, during the period when I was furthering my studies.
ACKNOWLEDGEMENT

I would like to thank and give Honour to God Almighty for his mercies, care, strength and guidance during the entire period of my study. I give my sincere gratitude to my employer; the Government of Kenya through the Ministry of Agriculture for giving me a chance to pursue my postgraduate studies and for providing me with a scholarship. I would like to thank the Department of Agricultural Economics and Agribusiness Management of Egerton University under the leadership of Dr. B.K. Mutai for their sincere and honest support as I pursued my postgraduate degree in Agricultural Economics. Special thanks go to my supervisors Dr. M. Ngigi and Dr. M. Mathenge for tirelessly and patiently supervising the whole research work, their guidance and support is highly appreciated.

I would also like to thank Climate Change Adaptation Project (CAPro) of Egerton University for sponsoring my research work and CAPro team members for their invaluable support in the research process. Thanks to farmers in Nakuru, Njoro and Rongai Sub Counties for providing their valuable time during the interviews and focus group discussions. In a special way I thank the Agricultural Extension officers; S. Rimungi, K. Mwangi, and N. Mwangi of Nakuru, Njoro and Rongai Sub Counties respectively, for mobilizing the farmers during data collection exercise.

To my fellow graduate students CMAAE 2009 thanks for teamwork and information sharing. My friends, Sarah, Emily, Alice, thanks for your prayers, encouragements and for putting a smile on my face during hard times. Appreciation goes to my fellow colleagues for sharing with me useful ideas during the entire period of study and research. I would like to thank my family for all the support they accorded me during study period. Special thanks to my husband Thomas who tirelessly encouraged and supported me during the entire period of my study. Finally, I would like to thank everyone who participated in one way or another in making my study a success.

Glory is to God!
ABSTRACT

Agricultural production plays an important role in food security in many African countries. The main challenge of policy makers in these countries is how to attain food self sufficiency, and increased farm productivity and incomes. In Kenya, greenhouse production is among technologies promoted to improve farm output and income among smallholder farmers. Greenhouse production technology in Kenya has, until recently, been the confine of large scale export-oriented flower farmers. The technology is recently picking up among smallholder farmers. This is due to promotional efforts by government and stakeholders through training and loans to buy greenhouse equipment. In Nakuru county greenhouse technology has been adopted by smallholder farmers as one of the emerging climate change adaptation strategies. The major crop grown is tomato. Tomato yields can be increased by up to four times if grown in a controlled greenhouse environment compared to open field production. Despite these promotional efforts, low productivity remains a major challenge. The purpose of the study was to determine levels of technical efficiency and factors influencing technical efficiency of smallholder greenhouse tomato farms in Nakuru County. Three Sub Counties were purposively selected, where all 100 smallholder greenhouse tomato farmers were interviewed. Primary data was collected using observations and interviews using semi-structured questionnaire. Data analysis was done using descriptive statistics, principle component analysis, cluster analysis, stochastic frontier function and two-limit Tobit model. The mean technical efficiency of greenhouse tomato production was 28.71%. Nakuru Sub County had the mean technical efficiency of 29.47%, Rongai 29.1% and Njoro 26.26%. Technical efficiency was positively influenced by cost of greenhouse items and negatively influenced by age, distance to the input dealer and farming experience. The study recommends that farmers should be sensitized on the appropriate input application rates. Also older and experienced farmers need to adopt new and innovative farming technologies to enhance their level of productivity. Incentives should also be provided to private investors to expand their agro-input shops to rural markets for farmers to access farm inputs easily. Finally, the targeted support advocated is that Government puts in measures and processes to ensure that dealers of greenhouse items supply affordable and quality items.

Key words: Greenhouse, Technical Efficiency, Tomato, Smallholder farmers.
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