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**FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL
SCIENCES**

**DEPARTMENT OF GEO-INFORMATION, EARTH OBSERVATION AND
PHYSICAL LAND RESOURCES**

ASSESSMENT OF BLACK SOLDIER FLY LARVAE AS NILE TILAPIA FEED

BY

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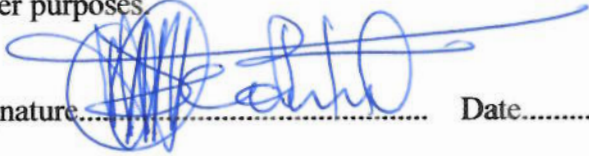


**A research dissertation submitted to Busitema University, Namasagali Campus in partial
fulfillment of the requirements for the award of Bachelor Degree in Fisheries and Water
Resource Management.**

JUNE 2019

DECLARATION

I OGUTA JOB FRANCIS, assert that this research report submitted to the Faculty of Natural Resource and Environmental Sciences is my original work and to the best of my knowledge, it has not been submitted by any other person to any institution for the award of a degree or any other purposes.

Signature.......... Date...../...../.....

OGUTA JOB FRANCIS

BU/UP/2016/282

DEDICATION

I would like to dedicate this research to all the students of Busitema University-Namasagali Campus; especially Yerinde Ambrose, Oteka Ronald, Nanyonga Irene, Sentogo Oscar, Etot Jimmy and Fisheries Class of 2016 as a motivation to always gear up their efforts towards achieving whatever tasks amidst the challenges as nobody says it was easy.

I would also like to dedicate this report to my dearly loved friends, particularly Tumwebaze Josephine and Selly Mercy Angwech, relatives and friends who offered me a lift all through this research in terms of advices, finances, and material support.

APPROVAL

This is to certify that OGUTA JOB FRANCIS, REG No. BU/UP/2016/282 has submitted this research dissertation to Busitema University, Faculty of Natural Resources and Environmental Sciences for consideration; as his research which shall bid a partial fulfillment for a Bachelor of Science degree in Fisheries and Water Resources Management.

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ACKNOWLEDGEMENT

This research is intended to set an impact on fish feed acquisition challenges by attaining cheap and environmentally friendly feeds from the locally available trash materials that have been abandoned in our environments (BSF). The idea met an accomplishment due to many terrific supports I have received from various corners around me. I want to thank Madam Gimbo Rebecca, a lecturer of Busitema University, Namasagali Campus who was the psyche at the back of this research for her supervision and other valuable contributions; my father Mzee John Edward Ometo for the facilitation all through my course; Dr. Alice Nakiyemba, the Faculty Dean- Faculty of Natural Resources and Environmental Sciences for generous contributions towards the academic excellence in the faculty which I have tasted. None of the above, of course, is responsible for the mistakes that crept in; those, regrettably, belong to me. I furthermore want to acknowledge a debt to Dr. John Balirwa for guiding the fisheries class of 2016/17 academic year.

ABSTRACT:

The research on black soldier fly as a fish feed for caged Nile tilapia in River Nile at Namasagali; aimed at comparing convectional feeds and feeds with black soldier fly larvae as the major protein source was focused on setting impact on fish feed acquisition challenges by attaining cheap and environmentally friendly feeds from the locally available trash materials that have been abandoned in our environments (BSF).

Caged Nile tilapia was fed twice a day on different feeds (conventional feeds and pellets with black soldier fly larvae replacing the protein content), initially at 30% body weight then later at 15% body weight and studied for three months. Every feed type was used in three different cages; which cages were arranged serially with each feed type interconnected to the other cages fed on the other feed type.

Tilapia fed on conventional feeds showed a generally higher growth response (60g) than those fed on feeds with BSFL (50g) as the major protein content in three months period. The feed with BSFL as the protein source was so fatty and smelt wacky although palatable to the fish.

Nyakeri Evans Manyara sighted a similar outcome in his thesis (optimization of production of black soldier fly larvae for fish feed formulation) submitted to School of Agricultural and Food Sciences Jaramogi Oginga Odinga University of Science and Technology, which showed that the growth trend of fish stocked at the same average initial weight and fed on the FM and BSFL diets were similar throughout the feeding period but with BSFL fed fish rambling FM fed fish.

BSFL was cheaper (2800/Kg), compared with conventional feeds (5000/Kg) with average total costs of feeds 156,800 and 271,600 Uganda shillings respectively.

LIST OF ACRONYMS/ABBREVIATIONS

FM	Fish Meal
DM	Dry Matter
BSF1	Cage 1 Fed on Black Soldier Fly
BSF2	Cage 2 Fed on Black Soldier Fly
BSF3	Cage 3 Fed on Black Soldier Fly
C/F1	Cage 1 Fed on Conventional Feeds
C/F2	Cage 2 Fed on Conventional Feeds
C/F3	Cage 3 Fed on Conventional Feeds
BSFL	Black Soldier Fly Larvae
BSF	Black Soldier Fly
FAO	Food and Agricultural Organization
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries

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CHAPTER ONE: INTRODUCTION

1.1.Introduction:

This chapter includes: background of the study, statement of the problem, general and specific objectives, research hypothesis, and conceptual framework; significance of the study, rationale of the study and the scope of the study.

1.2.Background of the study:

This concept emerged following the challenges that the local fish farmers face as they struggle with high costs of acquiring feeds, which feeds are in some cases protein deficient and cannot support high growth responses which the farmers expect in return (NaFIRRI, 2014 unpublished office manual).

There is still a big challenge where every scientist is scratching his head to find a solution which can manage this situation where farmers need an answer on how they can improve on their expenses incurred on “just” feeds.

This research was focused on feeding fish on black soldier fly larvae which is imagined to be a cheap, protein rich and environmentally friendly feed for aquaculture. Black soldier fly is known to have no effects on either humans or livestock (Katharina Unger, 2013), and scientists believe that it is edible by humans without any impacts; reason to believe that it may become the suitable solution to the current feed challenges facing aquaculture, however, a deeper research is still needed to find out its applicability, sustainability and advantages over other feeds. Poultry farming, piggery and fish farming in Africa and worldwide have greatly expanded and their need of protein food increased but the sources of protein (soya beans, fish, meat, and dried animal blood) are competed for with humans and other animals hence deprived as time goes on.

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