



**BUSITEMA
UNIVERSITY**
Pursuing Excellence

33/48

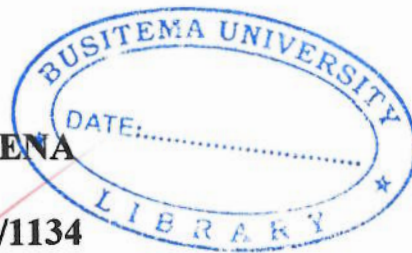
**AN INDUSTRIAL ATTACHMENT REPORT AT NATIONAL CROPS
RESOURCES RESEARCH INSTITUTE (NaCRRRI) NAMULONGE VILLAGE,
BUSUKUMA SUB COUNTY, WAKISO DISTRICT FROM 1 JUNE - 31 JULY 2016**

04

BY

LAWINO BENA

BU/UP/2015/1134



EMAIL: benalawino@gmail.com

INTERNSHIP COURSE NUMBER: 1301

YEAR: 2016

**AN INDUSTRIAL ATTACHMENT REPORT SUBMITTED TO THE FACULTY OF
AGRICULTURE AND ANIMAL SCIENCES IN PARTIAL FULFILLMENT FOR
THE AWARD OF A DIPLOMA IN CROP PRODUCTION AND MANAGEMENT.**

DECLARATION

LAWINO BENA hereby declare that this internship report is my original work that has never been submitted to any other institution of higher level of learning for a ward of any academic qualification.

(Handwritten signature in red ink)

Signature.....*Lawino Bena*.....

Date.....*24/8/2016*.....

BUSITEMA UNIVERSITY LIBRARY
CLASS No.:.....
ACCESS NO.: *FAA 2031*.....

APPROVAL

01

This report has been supervised and approved by:

TRAINING COORDINATOR (NaCRRI):

Ms. Nanteza Winnie.

Signature..... *Winnie*

National Crops Resources
Research Institute (NaCRRI)
P. O. Box 7084, Kampala

Date..... *25/8/2016*

INTERNSHIP SUPERVISOR:

Mr. Oonyu Source peter.

Signature..... *[Signature]*

Date..... *9/9/2016*

DEDICATION

01

I dedicate this internship report to my beloved grand Mum Marcella Ayoo and specifically my Uncle Mr. Francis Okema. Aunty Christine the financial support, care, guidance towards my academic excellence and during the course of this industrial training.

ACKNOWLEDGMENT

01

I would like to express my sincere thanks to my parents for the care, guidance financially support provided during the period of my study. May the almighty God bless the work of their hands.

To my brothers and sisters Bernard, Winnie, Rosemary and friends Emily, Fredrick, Mark, and Aloysius who help me where I could not make it be blessed. I extend my special thanks to the coordinator of NaCRRRI Miss Winnie Nanteza and Director for accepting me in this institute, and the manager Mr. Nobert for their support.

TABLE OF CONTENTS

01
Where are the preliminary pages ??

1.0	INTRODUCTION	1
1.2	Description of NaCRRRI	1
1.3	Historical background of NaCRRRI.	1
1.4	The Vision	1
1.5	The Mission	1
1.6	The purpose.....	2
1.7	Objectives of training	2
1.8	The location.....	2
2.1	Description of the attachment.....	4
2.2	LEGUMES PROGRAMME	4
2.2.0	Bean pathology	4
2.2.1	Sclerotium root rot disease.....	4
2.2.2	Bean anthracnose.....	5
2.2.3	Common Bacterial Blight (CBB) <i>Xanthomonas phaseoli</i>	5
2.3	BEAN AGRONOMY.....	6
2.3.1	Site selection:	6
2.3.2	Planting and spacing:	6
2.3.3	Fertilizer application:.....	6
2.3.4	Weed control.....	6
2.3.5	Pest and disease control.	7
2.4.0	BEAN BREEDING	7
2.5.0	BEAN ENTOMOLOGY.....	7
2.5.1	Bean bruchids or weevils.....	7
2.5.2	Management strategies.	7
2.5.3	Bean Fly	8

2.5.4 Pest management	8
2.5.5 Bean Foliage Beetle (<i>Ootheca mutabilis</i>)	8
2.5.6 Management	8
2.5.7 Black Bean Aphids (<i>Aphis fabae</i>)	8
2.5.8 Control	9
2.6 Soy Bean Production	9
2.6.2 Research process	9
2.6.3 Identification of commercially released variety	9
2.7.0 CEREALS PROGRAMME	10
2.7.1 IMPORTANCE OF MAIZE	10
2.7.2 MAIZE BREEDING. (POLLINATION)	10
2.7.3 MAIZE PATHOLOGY	10
2.7.4 MAIZE ENTOMOLOGY	11
2.7.4.1 Leaf hoppers. (<i>Cicadulina mbila</i>)	12
2.7.4.2 Stem borers	12
2.7.4.3 Maize weevils. (<i>Sitophilus zeamais</i>)	12
2.8 RICE SECTION	12
2.8.1 RICE PESTS	12
2.8.1.1 Stalk eyed fly. (<i>Diopsis thoracica</i>)	13
2.8.1.2 African Rice Gall Midge. (<i>Oreolia oryzivora</i>)	13
2.8.1.3 Stink bug and Rice bug	13
2.8.1.4 Stem borers (Pyramidal)	13
2.8.2.0 Diseases of rice	13
2.8.2.1 Rice yellow mottle virus:	14
2.8.2.2 Rice blast:	14
2.8.2.3 Brown spot disease:	15
2.8.3.0 Agronomy of rice:	15
2.9.0 ROOT CROPS PROGRAM	16

2.9.1 Importance of Cassava	16
2.9.2 Cassava agronomy.....	16
2.9.2.1 Site selection	16
2.9.2.2 Land Preparation.....	16
2.9.2.3 Selection of planting materials.....	17
2.9.2.4 Preparation of planting materials	17
2.9.2.5 Planting.....	17
2.9.2.6 Weed management.....	17
2.9.2.7 Harvestings.....	17
2.9.3 CASSAVA ENTOMOLOGY	17
2.9.3.1 Cassava white flies (<i>Bemisia tabaci</i>)	17
2.9.3.2 Mealy bugs (<i>Phenacoccus manihot</i>).....	18
2.9.3.3 Cassava Green Mites (<i>Mononychellus tanajoa</i>).....	18
2.9.4.0 CASSAVA PATHOLOGY.....	19
2.9.4.1 Cassava Mosaic Disease	19
2.9.4.2 Cassava Brown Streak Disease.....	20
2.9.5.0 CASSAVA BREEDING	20
2.10.0 SWEET POTATO (<i>Ipomoea batatas</i>)	20
2.10.1 Sweet potatoes breeding	21
2.10.2 SWEET POTATOE PATHOLOGY	22
2.10.3 SWEET POTATO ENTOMOLOGY	23
2.10.3.1 Sweet potato weevils	23
2.10.3.2 Sweet Potato Butterflies (<i>Acraca acereta</i>).....	24
2.10.4 Rapid Multiplication in Cassava and Sweet Potato.....	24
2.11.0 HORTICULTURE PROGRAM	24
2.11.1 GRAFTING	24
2.11.2 Air layering (Marcotting).....	25
2.11.3 MANGO PATHOLOGY.....	26

2.11.4 MANGO ENTOMOLOGY	27
CHAPTER THREE	29
3.1 Skills gained	29
3.2 Influence of the attachment to my future career plans.	29
3.3 Correlation of attachment activities with classroom knowledge.	29
3.4 Challenges faced during the period of my attachment.	30
CHAPTER FOUR.....	31
4.0 RECOMMENDATIONS:.....	31
4.1 TO NaCRRRI	31
4.2 TO BUSITEMA UNIVERSITY-ARAPAI CAMPUS	31
4.3 CONCLUSION.	32
5.0 APPENDIX:	33
5.1 WORK PLAN.....	33
5.2 Field attachment photos	35
5.3 REFERENCE	37

01

LIST OF ABBREVIATIONS

NaCRRI	National Crop Resources Research Institute
BUAC	Busitema University Arapai Campus
NARO	National Agriculture Research Organization
NAARI	National Agriculture and Animals Production Research Institute
NABE	Namulonge Beans
NASE	Namulonge Selection
JICA	Japan International Co-operation Agency
IITA	International Institute of Tropical Agriculture
NERICA	New Rice for
CBSD	Cassava Brown Streak Disease
CMD	Cassava Mosaic Disease
CGM	Cassava Green Mite
e.g.	For example
CMB	Cassava Mosaic Disease
NASPOI	Namulonge Sweet potato
NAROCASS 1&2	National Agricultural Research Institute Cassava One and Two

LIST OF TABLES

0.5

Tables

1. Shows major sweet potato diseases and their control measures. --- page ---
2. Shows the major maize diseases, their symptoms and control measures. --- page ---

ABSTRACT



The field attachment was carried out at NaCRRI which deals mainly in research in root crops, cereals, legumes, horticulture and palm oil. It is one of the best research institutions in East Africa. Under the National Agricultural Research Organization (NARO).

The institute began in 1951 dealing in research and production of cotton in East Africa which later was transformed into a general crops research in around 1993. The institute was then granted autonomy under the umbrella of National Agricultural Research institute under which it currently operates. The institute is located in Wakiso district, Busukuma Sub County in Namulonge village with different sister zonal research center spread throughout Uganda.

The organization and management structure is very pleasing because the well-defined hierarchical system in which roles and responsibilities are stipulated which enhances accountability, transparency and efficiency.

Basing on the above, the institute was surpassing providing all the required and anticipated skills for me, an upcoming agricultural scientist whose major role is to become a problem solver in the agricultural field. Skills and knowledge gained were in the areas of pathology, entomology, agronomy, breeding, social economics and climate change under the different programs of cereals, root crops, pulses, horticulture and palm oil as elaborated in chapter three.

This report therefore is based on purely the activities that were carried out during the internship period and the versed literature that was provided.

Forever will I be gratefully to NaCRRI for the work well done towards my academic and professional growth.

CHAPTER ONE



1.0 INTRODUCTION

1.2 Description of NaCRRI

NaCRRI, Namulonge is one of the public agriculture institutes under the policy guidance of National Agriculture Research Organization (NARO). The director of the institute is Dr. Asia Geoffrey (PHD) and the administrator is Ali Kaboggoza.

1.3 Historical background of NaCRRI.

- The National Crop Resources Research Institute (NaCRRI). Formerly Namulonge Agricultural and Animal Production Research Institute was established in 1949 by the Empire Cotton Growing Corporation of Britain
- It was established to solely investigate problem related to cotton production within the countries of British Empire. It served the Sudan, Kenya, Tanzania, Zambia, Malawi, Swaziland, Nigeria, Uganda and some extent, Gambia and Yemen. Uganda was chosen to be regional center because it was centrally placed and within the exception of India, Uganda the largest producer of cotton in the common wealth. The cotton Research Corporation handed over Namulonge to the Ugandan Government in 1972.
- The institute continued as a cotton research station until 1980's when research on the other commodity crops and animal production was introduced. The crops introduced included maize, cassava, sweet potatoes, rice, soya bean, sun flower, ground nuts, simsim, and wheat, in addition to cotton. Agro-forestry research was also introduced at that time in the institute.
- In addition, NaCRRI supervised the collection, processing and transmission of meteorological information for Ugandan farmers.

1.4 The Vision

“A Centre of excellence for all aspects of crops for accelerated development”

1.5 The Mission

“To generate, develop and disseminate appropriate crop technologic, methods and knowledge while conserving the environmental and crop genetic resources.