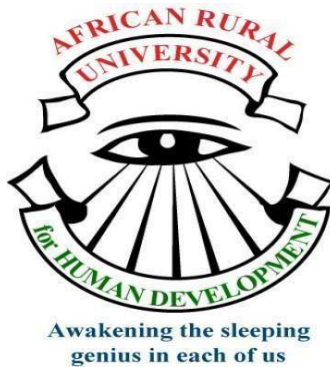


AFRICAN RURAL UNIVERSIT



FACULTY OF TECHNOLOGY FOR RURAL TRANSFORMATION

**END OF YEAR TWO FIELD ATTACHMENT ONE REPORT CONDUCTED AT
RWEBITABA ZONAL AGRICULTURAL RESEARCH AND DEVELOPMENT
INSTITUTE IN KYEMBOGO VILLAGE, BUSORO SUB-COUNTY KABAROLE
DISTRICT**

BY

BUKIRWA DIMINTRIA

REG NO. 21/ARU/BSSA/004

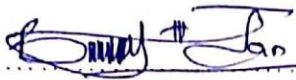
**A FIELD ATTACHMENT REPORT SUBMITTED TO THE FACULTY OF
TECHNOLOGY FOR RURAL TRANSFORMATION IN PARTIAL FULFILMENT FOR
THE AWARD OF A DEGREE OF BACHELOR OF SCIENCE IN SUSTAINABLE
AGRICULTURE OF AFRICAN RURAL UNIVERSITY.**

NOVEMBER, 2023

Declaration.

I BUKIRWA DIMINTIRIA, declare that this report is an original copy of my activities done during my field attachement conducted at Rwebitaba Zonal Agricultural Research and Development Institute (RWEBITABAZARDI) NARO. I declare that it has never been submitted to any university or institution for the award of a Bachelors Degree, Diploma or any other qualification.

Signature

.....

BUKIRWA DIMINTIRIA

Date... 23/11/2023

Approval

This is to certify that BUKRWA DIMINTIRIA had a month of field attachment training at Rwebitaba Zonal Agricultural Research and Development Institute and this is a true record of what she was able to be involved in and do under our supervision.

Agency Supervisor

Signature



Mugume Ronald



Date... 23/11/2023

University Supervisor

Signature.. 

Dr. Moses Kanyambindwa

Date... 23/11/2023

Dedication.

With special feeling of gratitude, I dedicate my dissertation work to my loving parents Mr. Mukalazi Francis and Nasande Mary and also my siblings for the love and care you gave me. My field and academic supervisors Mr. Mugume Ronald and Dr. Moses Kanyambindwa respectively and also Mr. Jackson Kusiima and Mr. Tibeingana Denis for your words of encouragement and push for tenacity ring in my ears.

Acknowledgement.

With so much pleasure am very grateful to people who contributed to my academic excellence by supporting me in everything during my field attachment for a period of one month.

First and foremost, my academic supervisor Dr. Moses Kanyambindwa who guided me academically and also gave me guidance and counselling that helped me to stay focused so that i can fulfill my obligations as a student.

Secondly, the staff and management of RWEBZARDI especially Mr. Mugume Ronald who was my field supervisor, Mr. Innocent Gumaoshabe, Peter Ssenyonga, Asiimwe Hillary and other staff members who guided me so that I accomplish my field attachment.

I dedicate this field report to my beloved family members especially my father Mr. Mukalazi Francis, my mother Mrs. Nasande Mary who gave me parental love and also supported me financially, my dear brothers and sisters, friends more especially Kevin and Loyce for their moral and financial support towards the completion of this field attachment.

List of Acronyms.

Rwebi ZARDI: Rwebitaba Zonal Agricultural Research Development Institute.

NARO: National Agricultural Research Organisation

ARU: African Rural University

URDT: Uganda Rural Development and Training programme

TRIEA: Tea Research Institute of East Africa

NARS National Agriculture Research System

NaCRRI: National Crops Resources Institute

WHAZ: Western Highlands Agro-Ecological Zone

NGO: Non-Governmental Organisation

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Abstract.

The field attachment at Rwebitaba Zonal Agricultural Research and Development Institute ZARDI commenced on September 27, 2023, following a brief orientation by Mr. Dominic. The one-month practical experience, fulfilling 40% of the course's practical component, provided insight into various enterprises within the institute. The attachment involved extensive engagement with activities across different programs, including crop and natural resource research, animal resource research, technology promotion and outreach research programs.

Throughout the attachment period, diverse activities were undertaken, encompassing field layout and pasture management, soya bean trial establishment, vegetables production, cassava production, maize production, rice production, agroforestry, soil and water conservation, apiculture, aquaculture, and livestock production. The experience not only deepened theoretical knowledge but also provided practical exposure, contributing to a well-rounded understanding of agricultural practices and research methodologies. The field attachment concluded on October 28, 2023, marking the successful completion of this hands-on learning opportunity.

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

This chapter stretches the back ground of field attachment, back ground of African Rural University (ARU) and Rwebitaba Zonal Agricultural Research Development Institute (RwebitabaZARDI), purpose of field attachment, objectives and the scope of field attachment.

1.1 Back ground of ARU

African Rural University (ARU) is a value-based, all-women university that creates a discipline of professional rural transformation specialists: change-makers and agents that work within the African development context. African Rural University's graduates call for a re-orientation of the mindset and generate energy around visions and possibilities, rather than problem-solving. The graduates enable the rural people to move from dependency to independency to sustainability and interdependency, Ubuntu: I am because you are, hence we care for self, others and our mother earth.

The University has a strong foundation: 25 years of successful rural development work by the Uganda Rural Development Training Programme (URDT). An indigenous non-governmental organization (NGO) that founded ARU. The 1987 Articles of Association mandated URDT to establish a rural university „comprising disciplines which develop the full potential of the people, especially the young, to strengthen the social and economic structures at the rural and national levels”. URDT is a close partner to ARU in participatory action research, placements of students in rural communities and advocating for the African Renaissance. The preparations for ARU started in 2002 and the co-creating process involved multiple teams and diverse stakeholders.

1.1.2 Back ground of the course.

The Bachelor of Science degree in Sustainable Agriculture is a comprehensive program that integrates technical, natural, economic, and social sciences. This interdisciplinary approach equips students with a holistic understanding of the management and conservation of the natural resource base. The program is designed to orient technological and institutional changes, ensuring the fulfillment of human needs for both current and future generations.

A central focus of the program is to instill environmentally friendly agricultural practices, addressing the escalating global demand for food while concurrently prioritizing the conservation of ecosystems. Graduates from the Bachelor of Science in Sustainable Agriculture program are expected to possess in-depth knowledge, practical skills, and valuable experiences in sustainable soil, land, and water management. This expertise is aimed at enhancing agricultural production and productivity in a manner that is both environmentally conscious and socially responsible. The program thus prepares individuals to contribute to the sustainable development of agriculture, meeting the needs of the present without compromising the ability of future generations to meet their own needs.

1.1.3 Background of Field Attachment.

At the end of second and third years of study, students who successfully complete four/six semesters are sent to the field; during which they are introduced to various firms/farms and organizations to learn practical skills in the modern agriculture technologies, extension work, program development and firm management at different levels. Outreach will acquaint learners with interpersonal relationship with the farming communities and rural sociological principles and approaches. The one month of field attachment was carried out to fulfil the ARU requirement of 40% practical and 60% theory. The 40% practical is fulfilled through project work, student participation in area of placement which was at Rwebitaba Zonal Agricultural Research Development Institute supervised by the field supervisor who was Mr. Mugume Ronald and the university supervisor who was Dr. Moses Kanyambindwa with the help of the epicenter manager.

1.1.4 The objectives of the field attachment

- Develop skills in the application of theory to practical work situations.
- Acquaint the learner with skills and knowledge to devise a sustainable farming technology that will be disseminated for adoption by the local farmers to address their needs.
- Test the students' aptitude for a particular career before permanent commitments are made.
- Develop skills and techniques directly applicable to their careers.
- Enable students acquire good work habits.
- Enable the student a systematic needs assessment of a farm and identify real life problems in the local farming communities.
- Equip the student with a hands-on practical farming to appreciate and transform theory into practice.

1.2 Back ground of Rwebitaba ZARDI

RwebitabaZARDI, originally established in 1960 as a Tea Research Centre, emerged as the main tea breeding station for the Tea Research Institute of East Africa (TRIEA). However, the collapse of the East African Community in 1977 led to the cessation of research activities in Uganda, with TRIEA discontinuing operations in 1978. Subsequently, Rwebitaba came under the administration of the Ugandan Government.

With the enactment of the National Agriculture Research System (NARS) Act in 2005, the National Crops Resources Institute (NaCRRI) assumed control of Rwebitaba in 2007, aiming to revive tea research in Uganda. In July 2011, NARO declared Rwebitaba a full-fledged institute for the Western Highlands Agro-Ecological Zone (WHAZ), encompassing several districts in the region.

RwebitabaZARDI is one of nine zonal agricultural research and development institutions established under the 2005 parliamentary act, guided by NARO's policy framework. RwebitabaZARDI addresses agricultural challenges specific to the western highlands of the agro-ecological zone. The other eight ZARDIs are located in different agricultural zones and include; MbaZARDI in Mbarara, BugiZARDI in Bulambuli, BuZARDI in Hoima,

KachwekanoZARDI in Kabale, AbiZARDI in Arua, MuZARDI in Mukono, NgeZARDI Lira, and NabwinZARDI in Moroto.

Operating in two stations, namely the Rwebitaba tea research center in Kyenjojo and Kyembogo station in Kabarole district, the institute officially began operations in October 2011. Its primary role is to serve as a zonal entity, focusing on applied and adaptive agricultural technology development and dissemination to various stakeholders in the Western Highlands Agro-Ecology Zone.

1.2.1 Vision

To improve the livelihoods and income of resourceful poor farmers through generation the dissemination profitable and sustainable technologies for improved productivity of the farming systems in the WHZ.

1.2.2 Mission

To improve agricultural productivity of farming communities of WHZ by conducting and disseminating appropriate demand driven and market responsive strategic and adoptive and applied research while enabling sustainable natural resource management.

1.2.3 Goal

To enable NARO to respond and contribute to sustainable agricultural productivity by conducting relevant research that will enhance economic growth, food security and poverty eradication in the WHZ.

1.2.4 Mandate of Rwebitaba ZARDI

To conduct demand driven and market responsive applied and adaptive research in crops, livestock, aquaculture, meliponiculture and apiculture to develop appropriate technologies for dissemination to update pathways.

1.3 Location of organization in which internship was conducted.

The RwebiZARDI is located in Kyembogo village, Busoro sub-county, Kabarole district, Kijura road, 12km from Fort portal city. The study area is characterized by bimodal rains with two seasons; first season: March to June, second season: August to December with average rainfall of

1,623mm. The average temperature is 20.2 C° with humidity of 77% (Rwebitaba Metrological Weather Station, 2021).

1.3.1 Fig 1. Map showing the location of RwebitabaZARDI in Kabarole District

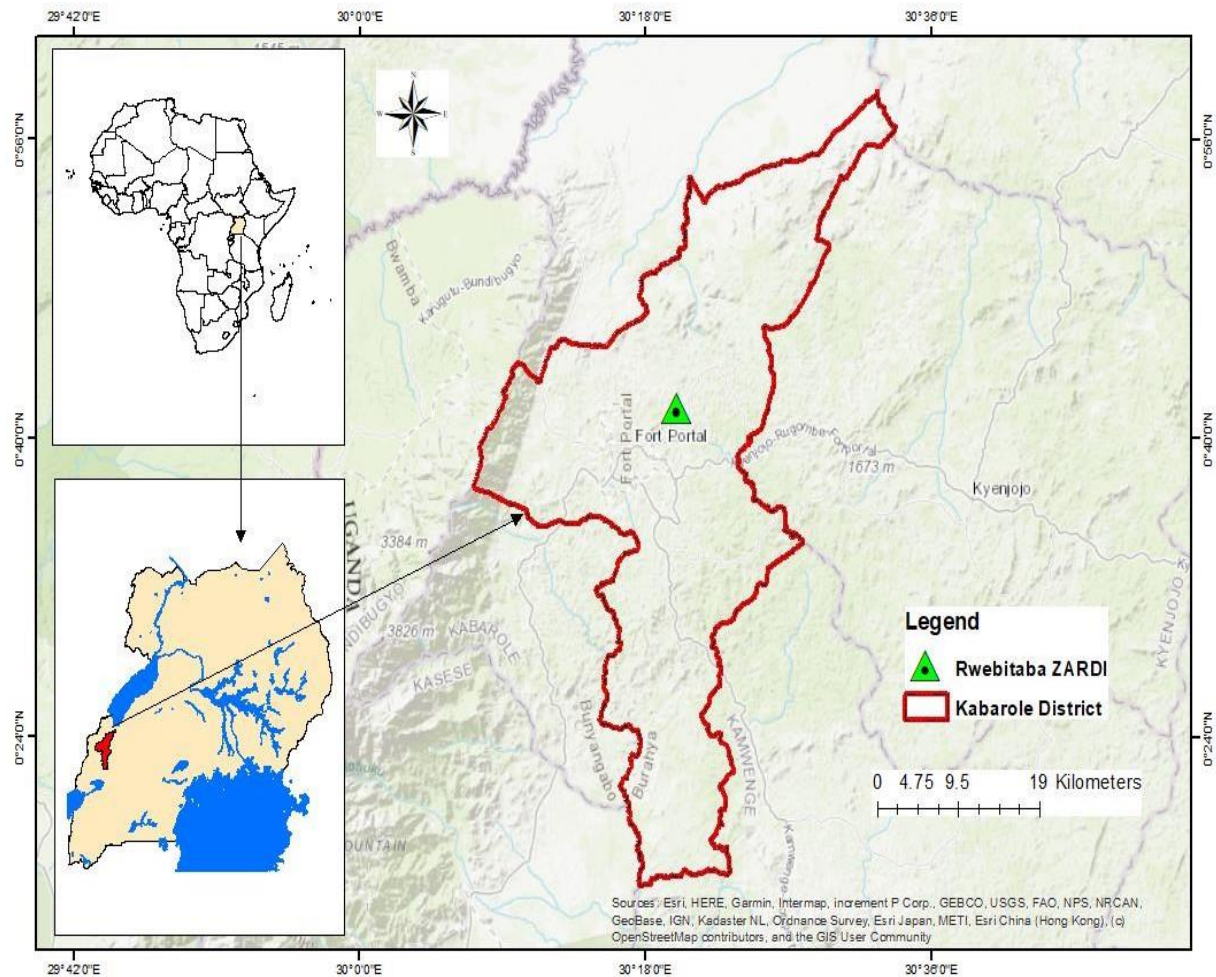


Figure 1.

1.4 Core functions of RwebitabaZARDI

To comprehend constraints, opportunities and component interactions in the farming system of Western Highlands Agro-ecological Zone.

- To conduct basic, applied and participatory adaptive research and generate appropriate technologies for dissemination to uptake path-ways.
- To provide and process feedback between farmers, researchers, extension staff and other partners in order to identify and respond to zonal specific and emerging production and marketing constraints.
- To contribute to multiplication of foundation seed for distribution to farmers and other research partners.
- To generate and disseminate tea technologies country-wide.
- To establish and strengthen collaboration and linkages in order to exploit synergy in research and uptake of technologies.

1.5 Target population

The target population of RwebitabaZARDI is the Western highland agro-ecological zone that comprise of the nine districts namely, Bundibugyo, Kyegegwa, Kabarole, Bunyangabo, Kamwenge, Kasese, Kyegegwa, Kyenjojo, and Ntoroko including the national mandate of Tea reach.

1.6 Products/ services offered by the organization

The products offered by the organization are got from different enterprises and they include honey, propolis from bee keeping, well improved and planting materials and breeds plus technical back stopping and that under takes applied and adaptive agricultural technology development and dissemination to different stakeholders in the western highlands agro-ecological zone.

1.7 Source of Funding

RwebitabaZARDI is funded by the government of Uganda, competitive proposal writing, grants and from the non-tax revenue collected and then ploughed back in research including other activities.

1.8 Organizational and Management structure of Rwebitaba ZARDI

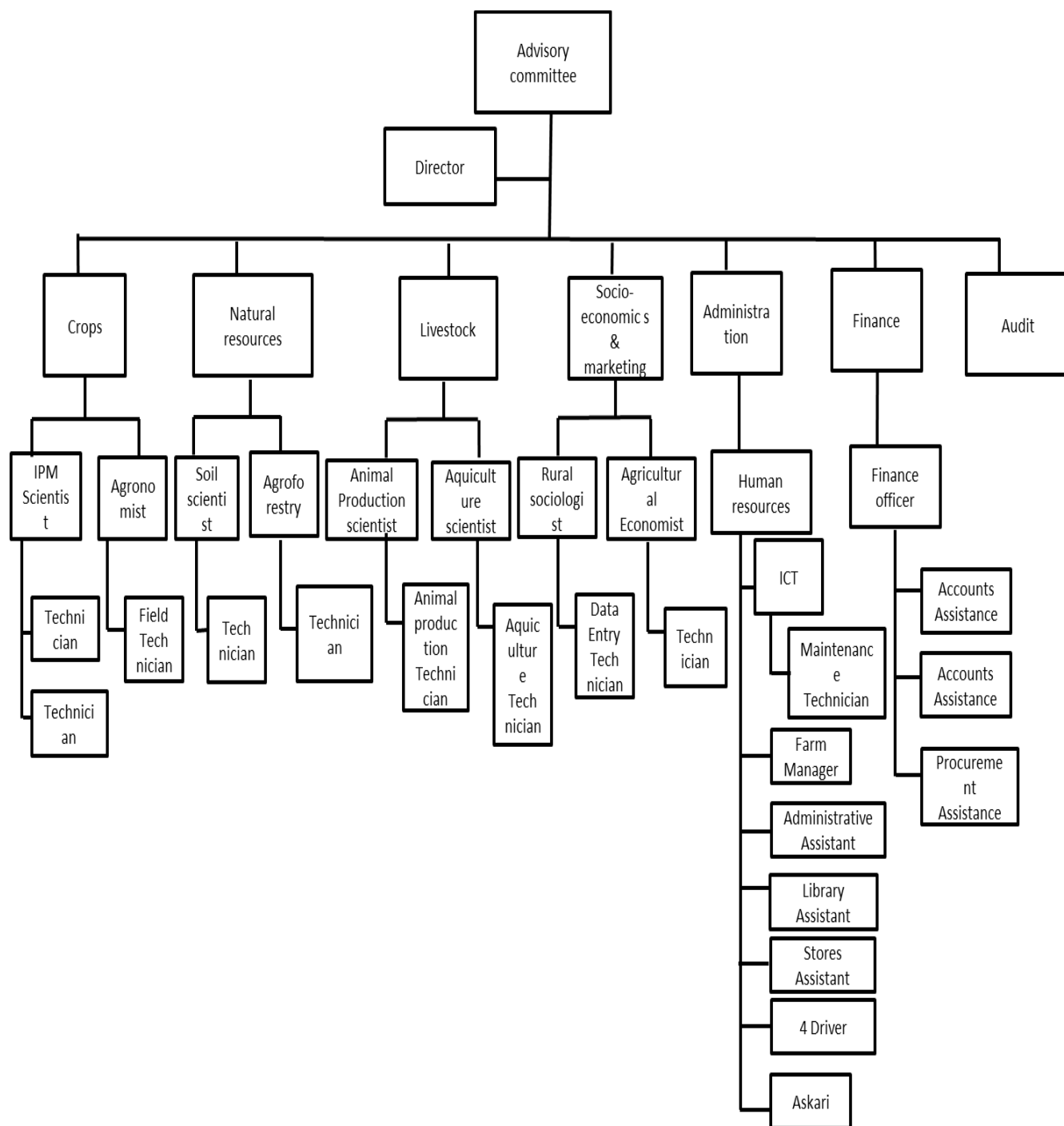
The management structure comprises 35 staff members. Among them include 12 research scientists, 9 research technicians, and 14 support staff

1.8.1 Human Resources

The Human Resource and Administration section serves as the coordinating hub for planning human resource and administrative activities within the organization. This encompasses crucial functions such as staff recruitment, worker training, welfare management, corporate responsibility, and ensuring ethical practices aligned with job descriptions and specifications. At the helm of this section is the Human Resource and Administrative Officer.

The team responsible for human resource and administration consists of key roles, including the Finance Officer, Accounts Assistants, Cashier, Procurement Officer, Internal Auditor, Inventory Officer, and locally recruited staff. Together, they work collaboratively to streamline and oversee various aspects of organizational management, ensuring a well-functioning and ethical work environment.

1.8.2 Organisation structure RwebitabaZARDI



1.9 Research programs at RwebitabaZARDI

RwebitabaZARDI has three programs offered which include,

- Crop and natural resource research program
- Animal resource research program
- Technology promotion and outreach research Program

Crop and natural resource program.

This section covers research and improvement on different crop varieties and seed multiplication. Research and multiplication is done on crops like cassava, potatoes, seed maize, beans and soya bean, banana sucker multiplication, different vegetable crops such as cabbages and tomatoes. The research is headed by an agronomist (agronomy scientist) supported by a technician and a volunteer.

Tea research project

As earlier on said that RWEBZARDI was originally into tea research, the organization therefore still holds a national mandate to conduct research in tea and this is in a special way conducted from Rwebitaba Kyenjojo Tea Research Station (TRC). The organization conducts research about different pests, pathogens and diseases that infest and infect tea forests and how susceptible or resilient the tea plants are. The research also goes to identifying the different tea clones and how they suit geographically, breeding tea clones, to mention but a few.

Agroforestry project

This section entirely looks at conserving the environment the different tree species and varieties. Tree fruits such as avocado and in here are HASS Avocado variety, mangoes, apples, oranges are bred and managed. The indigenous tree species such as Mvule, musisi, mahogany also conserved. Coffee plants are also bred and managed. Grafting is always done to improve the traits of the different tree species for instance to improve the fruit sizes, to attain shorter fruit trees for easy harvesting among others.

Animal resources research program.

Under this Programme there are projects such as, the livestock project, aquaculture specifically fish farming in ponds and harpers and apiculture projects are implemented at the institute.

The livestock project.

Research on livestock animals particularly cattle and goats is done and the breeds are the cross breed of cattle and Boer goat is done. Improved pasture varieties are also grown both leguminous and grass pastures for instance alfalfa, *calliandra calothyrsus*, *sesbania sesban*, lablab, green leaf desmodium, silver leaf desmodium, centrosema for the legume pastures and chloris gayana, Napier grass, NARO napier, sugar napier, Branchiaria, kikuyu grass, for the grass pastures. This is entirely to improve nutrition of the livestock to increase their yields in form of milk production for the dairy cattle and meat for goat. . The section is headed by a research officer who is also an animal health scientist/ head of program animal resources.

Apiculture project

Research in apiculture is to investigate the appropriate technologies for increased apiculture production in the zone. Efficiency of different bee hives (KTB, Langstroth bee hives, Log bee hives, Weaved bee hives) on colonization and honey yield looking at quality and quantity, both on-station and on-farm. This investigation is being undertaken in different districts of the WHAZ. Different types of bee forage (*calliandra calothyrsus*, *ocimum species*, and *citrinus carlistermons*) being evaluated on suitability, nectar and pollen production. The project has more activities in stingless bees. Apiculture project is actively involved in research project titled “Domestication of stingless bees in Uganda”, this project intends to identify, multiply, domesticate, characterize stingless bees, developed high value stingless bee products, design appropriate hive technologies, design protocols of harvesting stingless bee products, evaluate which stingless bee species is good for which product and commercialize stingless in Uganda. The section is headed by the apiculture scientist who is also the director of research, and with the support of the apiculture technician and a volunteer is also attached on this project where i spent most of my time engaged.

Fisheries and aquaculture project

Basic, applied and adaptive research is being carried out to generate appropriate technologies to improve fish production in the WHAZ. On-going data collection on feeding strategies, fish breeding and establishment of base population of pure lines of Nile tilapia in earthen ponds to improve fish production in the zone. On-station fish breeding in earthen ponds is carried out under seed multiplication to avail quality seed to fish farmers who lack access to quality stock in the zone. The section is headed by the Aquaculture Scientist assisted by the Aquaculture technician, all under the head of program Livestock research resources program.

Technology Promotion and outreach Programme

This Programme is responsible of taking out the generated technologies to final beneficiaries for adoption; it looks at socio-economics, social cultural aspects of the communities on the technologies and trends in the WHAZ. It links up different stakeholders in agricultural socio-economic related activities. These include; policy formulation, gender issues, social issues, marketing of agricultural produce and the trend of commodities in the market, value chain analysis and conducting farming systems and livelihood surveys for all the units. This is headed by the socio-economist scientist assisted by a rural sociologist.

CHAPTER TWO

INTERNSHIP EXPERIENCE.

2.0 Introduction.

This chapter reviews the management of the internship exercise, the field attachment plan, the organization and its role, duties performed in area of placement and the status and roles of the field and the university supervisor.

2.1 Organization of the field work.

The field internship attachment at RwebitabaZARDI started 27/09/2023 and we had a brief orientation by Mr. Dominic Twesigye. The next day i carried touring around the institute and observed the different enterprises carried out on the institute. In partial fulfillment of the course I got involved in a variety of activities within one month period and increase perfection by doing what I studied theoretically to practical which helped me to acquire more knowledge and skills from different enterprises and the activities engaged in include field lay out and pasture management, soya bean trial establishment, vegetables production, cassava production, maize production, rice production, agroforestry, soil and water conservation, apiculture, aquaculture and livestock production

2.2 Organization and its role.

Rwebitaba ZARDI has three programs offered which are crop and natural resource research program, animal resource research program and technology promotion and outreach research Programme.

Crop and Natural Resource Research Program

This section is responsible for carrying out research on the genesis and classification on crop soil and other natural resources. Understand crop production the enterprises at Rwebitaba ZARDI include banana production, coffee production, Irish and sweet potato production, bean and soya bean production, cassava production, tea, maize production and agroforestry.

Animal Resource Research Program

This program is responsible for providing high quality animal care services and facilitates to improve animal research and ensure the health and the welfare of animals. At RwebitabaZARDI, the enterprises under animal production include cattle production, goat rearing, pasture production, aquaculture and apiculture.

Technology Promotion and Outreach Research Program

This program aims at supporting the mult stake holders’ innovation platform around seed production through training in different aspects like agronomy, quality control, post-harvest handling, marketing and group management. Under this program, the services provided by RwebitabaZARDI include provision of seeds to farmers, field study by students, refugee project and partnership with other organizations.

Rwebitaba ZARDI’s score function is to comprehend constraints, opportunities and component interactions in the farming system of Western Highlands Agro-ecological Zone. And its objectives are;

- To conduct basic, applied and participatory adaptive research and generate appropriate technologies for dissemination to uptake path-ways.
- To provide and process feedback between farmers, researchers, extension staff and other partners in order to identify and respond to zonal specific and emerging production and marketing constraints.
- To contribute to multiplication of foundation seed for distribution to farmers and other research partners.
- To generate and disseminate tea technologies country-wide.

- To establish and strengthen collaboration and linkages in order to exploit synergy in research and uptake of technologies.

2.3 Status of the field supervisor

Mr. Mugume Ronald was my field supervisor and he is an apiculture scientist

The following are the roles the field supervisor.

- Develop learning objectives and goals with the students
- Monitor the intern students to ensure students accomplish the assigned duties.
- Evaluate student's progress and provide feed back

2.4 Status and role of the field supervisor

Dr. Kanyambindwa Moses is a lecturer in the agriculture department and the following are his roles

- Evaluate and examine students' academic progress
- Give instructions and encouragement in the research activities.
- Serve as mentor to students by guiding them

2.5 Roles as a student

- Engage in the activities assigned to
- Net working with professionals in different enterprises
- Gaining professional experience in the field
- Learning different services in the field
-

CHAPTER THREE

FINDING AND OBSERVATIONS

3.0 Introduction

This chapter comprises of, the enterprises engaged in during field attachment and their description, experience and knowledge gained, personal contributions and the problems encountered. The methods used during field attachment at Rwebitaba ZARDI were hands on, observation, lectures, outreach and extension, and participatory action research. These were employed in activities like banana production, Irish potato production, field lay out, cassava production, rice production, aquaculture, apiculture among others.

3.1 ACTIVITIES CARRIED OUT

3.1.1 Animal management.

Livestock refers to the domesticated animals raised in agricultural setting in order to provide labor, milk, meat, fur, wool among others. At RwebitabaZARDI, the enterprises under animal production include cattle production, goat rearing, pasture production, aquaculture and apiculture. Livestock management refers to series of activities carried out on an animal farm to increase their level of production in areas of nutrition, housing and infrastructures, breeding and health. Nutrition constitutes 65% productivity, housing and infrastructures 15%, breeding 15%, health 5% and production 5%. Nutrition is the main principle in animal production and the nutritional requirements are proteins which are body building feeds, carbohydrates energy source and vitamins boost the body immunity.

The following animal management practices were carried out at RwebZARDI.

3.1.1.1 Detection of Mastitis

Mastitis is an inflammatory response of the udder tissue in the mammary gland caused due to physical trauma or microorganism infection. Observation of the cow was done during milking where by Rweb 18 which was the cow being milked had a swollen right layer teat and the milk

from the teat was bloody. After observation the milk produced was collected separately in a bucket and poured in the hole dug to avoid infection.



Detection of mastitis in milk



Observing the affected milk

3.1.1.2 Control of Mastitis.

Mastitis is an inflammatory response of the udder tissue in the mammary gland caused due to physical trauma or microorganism infection. With the help of Mr. Gumoshobe Innocent I was able to treat mastitis and also, I learnt more about mastitis. Mastitis has two classes which are acute mastitis which is due to bacterial infection and it is mostly common in postpartum period and causes swelling and chronic mastitis which is a lasting breast pain with no evidence of a cute inflammation causing breast warmth and swelling, thickening of the blood tissue and pain during milking.

After observing that Rweb 18 produced blood milk, further checkup was done to confirm whether it is mastitis or physical damage of the cow in order to carry out proper treatment. The following procedures were followed when treating Rweb18

- Rweb18 was brought into a crush and restrained using a holter by tying the hind legs to avoid disturbance.
- The udder was washed and cleaned using a clean towel

- Milking of each teat was done in order to know the number of teats affected and the milk being milked was poured on a clean black gumboot since we had no strip cups.
- Since black attracts all colors, we were able to observe the teat that produced infected milk and it was the right layer teat. Continuous milking was done to remove all the milk from the teats.
- An intramammary tube was used by on the affected teat and massaging the teat after inserting the drug.
- Regular monitoring and further treatment were done using intermycline drug which has a withdraw period of 7-days milk and 21 days“ meat.



Inserting the drug in a syring



Treating Rweb18

3.1.1.3 Milking

This is the act of removing milk from the mammary glands of the female animal. It may be done by hands or machine and it requires the animal to be currently or recently pregnant.

The following were procedures followed when milking the cow at RwebZARDI with the help and guidance from Ms. Marcy.

The animal was brought to the milking parlor which also contained feeds for the animal. Restraining the animal was done using the halter on the hind legs to avoid disturbance by the animal.

- Cleaning of the udder by washing the teats with water to avoid infestation and also to produce clean milk
- Drying the teats using a clean towel to produce good quality milk.
- Applying of milking salve to smoothen the teat in order to avoid physical damage of the teats
- Milking was done by stripping the milk from the teats into a clean milking bucket
- Measuring was done after milking and we collected 6 litres of milk.



Milking Rweb18 cow being milked.

3.1.1.4 Identification of Animal Pastures.

Pastures are green plants feed to animals. Miss Mercy helped me to identify different pastures in the pasture field and the identified and they were legume pastures and grass pasture. The legume pastures are more palatable to animals than grass pastures. Examples of grass pastures are Chloris Giana, branchiara muratha and molato, Naro napier, sugar napier, and kikuyu grass. The legume pastures were alfalfa, sesbania seseban lablab green and silvery desmodium, cantrosema and cariantra. The methods used in pasture feeding are cut and carry, hay making and silage

making. Different pastures provide different nutrients where by legumes provide proteins, grass pastures provide carbohydrates and vitamin is provided by all green plants.



Identifying sesbania seseban



Identifying lablab pasture

3.1.1.2 Apiculture project

This is the keeping and rearing of bees for differing purposes such as tourism, research, food, pollination among others. Apis refers to species of stinging bees. At Rweb ZARDI the species of stinging bees reared are

- Apis mellifera adansonai which are dark in color, small in size and aggressive
- Apis mellifera scutellata are big in size, brown and docile

3.1.1.2.1 Bee species

With the cooperation of Mr. Mugume Ronald, I identified different castes of bees and the bee colony consists of three castes which are the queen, drone and worker bee

The Queen Bee

The queen bee is brown and large in size and also has well developed reproductive tract and a spermatheca which is the sperm bag that aids in fertilization. It uses mating signs like dancing, pheromones and a smell to attract the drone bees when it's ready for mating.

- The queen bee lays both fertilized and unfertilized eggs hence the mother of the colony.
- The queen bee has a sting and therefore commander of the colony

- It mates with the drone in a drone congregation area.

The Drone Bee

Drone bees are male bees with a medium size.

- They mate with the queen in a drone congregation area which is an area where bees meet for fertilizations
- It is the father of the colony.

The Worker Bees

These female bees with undeveloped reproductive systems and they constitute the large number in the colony. They are small in size and have a sting which is used for protection. They carry out different activities in the hive which include

- Collecting nectar to make honey and pollen to feed the brood
- Carry out construction of the hive using their wax and repair in case of any damage in the hive
- Worker bees collect water used in softening food for the brood also cooling the hive.

3.1.1.2.2 Bee hives

Different bee hives are used at RwebitabaZARDI such as local bee hives, semi modern bee hives and modern hives.

Local bee hives. These are hives made from locally available materials like clay, fibers, wood among others and examples include box hive, pot hive, leg hive and weaved hive.

Advantages

- They are cheap and can easily be established.
- They are portable since they can be put in different places like trees
- They can locally be made

Disadvantages

- They are not durable since they can easily be destroyed

- They accommodate little number of bees as compared to modern hives.
- They can easily be affected by adverse weather conditions like heavy rains.

Semi modern hives. These are movable hives made from improved materials and they are more durable than the local hives they include Kenya top bar hive and Tanzania top bar hive. They have a long durability than the local hives and also they can accommodate a large number of bees.

Modern hives.

These are fixed hives made from modern movable frames and examples include the langstroth hive.

Advantages

- Easy to inspect and harvest.
- Easy to control swarming
- Bee breeding and queen rearing is possible
- They are very durable

Disadvantages

- Weakens the bee's immunity
- They are very expensive to buy.

3.1.1.2.3 Bee forage plants.

These are plants that provide pollen and nectar for bees. They include the

Diurnal plants; which flower during day and have flowers that smell to attract bees. They include Lucina, calliandra and ocimum.

Nocturnal plants; which flower at night such as the evening primrose and the moon flower.

They are not normally visited by bees because bees are active during day

Repellant plants; which do not allow bees to get pollen and nectar since they have defensive mechanism like hairs and a tough smell such as geraniums and marigold.

Carnivorous plants; which suck nutrients from bees after being trapped trying to get nectar and pollen

3.1.1.2.4 Meliponiculture

This is the rearing of stingless bees. RwebZARI also carries out mellipoculture and examples include *Melipona furuginea*, *melipona bocandai* and *hypotrigona gribodoi*. The stingless bees have no sting, and are small in size with a brown color. The following activities were carried out under meliponiculture at RwebZARDI.

3.1.1.2.4.1 Identification of different bee castes in a bee hive

Different bee casts were observed in the bee hive after opening the hive where by the drone bees were larger in size than the worker bee than and also not as brown as the worker bee. The worker bees were many in number as compared to the drone bee while the queen bee was not observed because it was in the involucre.

3.1.1.2.4.2 Estimating the number of bees on a forage plant.

This was done to determine the number of bees visiting the plant for both nectar and pollen. Bees visit the plants at different times of the day and talley counting was carried out using the stick to determine the talley marks and then counting the number of bees on a plant and 17 bees where counted on an ocimum plant. This is normally done to know the number of bees visiting a plant and at what time of the day since bees visit different plants at different times of the day for both nectar and pollen.



Estimating the number of bees on the forage plant



Identification of different bee castes for which stingless

The following are factors considered when siting an apiary.

- The site should be 200m from the public on an open area and 100m in the forested area to avoid disturbance of bees by the public.
- The site should have forage plants where bees will be collecting nectar and pollen and the plants should be diurnal plants since they are attracted by bees.
- The site should be near a water source so that bees are able to collect water to be used in the hive to regulate temperature, softening food for young bees and making honey.
- The site should be free from pesticides, pests, predators and vermin since they may attack and kill bees.
- The site should be free from noise since this may cause bee swarming.
- The site should be on a gentle slope to encourage the establishment of bee hives.

3.1.1.3 Aquaculture management

Aquaculture refers to the practice of rearing aquatic animals including fish, molluscs, crustaceans, crocodiles among others. With the help of Mr. Mununuzi David I learnt about different species of fish reared at RwebZARDI which feeds on different types of feeds and they include the following

3.1.1.3.1 Fish species

Different fish species are reared at RwebZARDI which include the following

Cat fish: This resembles a cat's whisker and range in size and behavior. They possess leading spines on their dorsal and pectoral fin

Tilapia fish: these are shaped like a sunfish and are easily identified by the lateral line characteristics. They are composed of deep bodies and have long dorsal fins.

Fish undergo several stages of growth which are eggs, embryo, hatching, fry, fingerling, juvenile and adult fish. There are several conditions necessary for aquatic life which include water ph., temperature, oxygen and conductivity.

3.1.1.3.2 Fish feeds

- Zoo planktons and phytoplankton which are small aquatic organisms that are unable to swim effectively against currents and are provided naturally.
- Pellets which are artificially made from a mixture of fish meal, plant protein, vitamin and minerals and they are normally fed to young fish.

3.1.1.3.3 Features of A Fish Pond.

- Pond wall; which holds water in the pond
- Water pipes; includes the inlet and outlet pipe which allows water in and out respectively.
- Water controls; control the level of water and its flow through the pond.
- Tracks and road ways; for access of the pond.

The following are factors that should be considered when siting a fish pond.

- Topography of the area. The fish pond should be constructed in an area that is on gentle slopes to avoid unnecessary drainage.
- The fish pond should be constructed on fertile and well drained soils which ensures regulates the amount of water in the pond and also the fertility of the pond.
- Accessibility of the pond should also be considered while siting the fish pond to encourage the production and effectiveness of the fish pond.

Activities carried out in aquaculture at RwebZARDI

3.1.1.3.4 Fish Feeding

This is the practice of providing food to the fish. With the help Mr. David Mununuzi I carried out fish feeding and the type of feed that was given to the fish was the pellets which were thrown in the fish pond and the fish would come up and feed on the fish provided. The pellets were a mixture of silver fish and protein feeds which have a smell that attracts fish and also, they were very palatable to fish.

3.1.1.3.5 Fish Pond Cleaning

The fish pond was cleaned by going into the water pond and removing the green algae which was on the top of the water using the hands. The collected algae were brought on the surface of the pond since it causes fish suffocation by cutting off oxygen supply and also limiting light penetration in water that limits the growth of planktons which acts as fish food.



Feeding fish



Removing algae from a fish pond

3.1.2 Crop management

Understand crop production the enterprises at Rwebitaba ZARDI include banana production, coffee production, Irish and sweet potato production, bean and soya bean production, cassava

production, tea, maize production and agroforestry. Different activities were carried out at RwebZARDI which include the following.

3.1.2.I Field Lay Out

This is a practice of mapping and demarcation of the field to achieve uniformity and accuracy in the field. The materials used in field lay out include ropes, tape measure and pegs.

Field lay out was carried out first by using a method of Pythagoras theorem to determine the base, height and the hypotenuse using a 3 4 5 techniques to make a field tringle. Then the field was increased by addition and multiplication using a constant factor. The field measured was of the size 35 by 47.



Measuring the size of the field



Determining the base, height and hypotenuse.

3.1.2.2 Banana management.

Bananas belong to Musaceae family and the variety planted was Mpologoma which has a maturity period of 6 months to first harvesting and a spacing of 3m from one plant to another. There are two types of banana management practices which are establishment and rehabilitation practices. I carried out the following banana establishment practices with the help of the farm manager.

3.1.2.2.1 De-Suckering

This is the practice of reducing the number of banana suckers on a plant and it was done using a small hoe and a panga and I uprooted sword suckers because they get enough nutrients from the mother plants instead of a water sucker which is an independent sucker since they are less productive because they lack nutrients and they are prone to pests and diseases. The suckers on the banana plant were removed and only the mother, daughter and granddaughter plants were left to avoid competition. After removing the sucker, the hole left is covered with soil to avoid infection



Desuckering of banana

3.1.2.2.2 Suck paring

Suck paring. This is the process of cleaning of the uprooted sucker by removing all the roots and pruning it using a panga and this helps to avoid disease spread from the mother plant and also to avoid pests since the excess roots acts as breeding grounds for pests like weevils the sucker should be left for about 3 to 4 days so that the pests that might have remained on a plant starve and die and their life cycle is broken. A slant cut is used for easy growth



Sucker paring



Paired suckers

3.1.2.2.3 Digging of the holes and planting.

Digging of the planting holes was done using a hoe in the marked areas and after planting was done following these procedures below

- Laying of the field was done by clearing the field where the suckers are to be planted
- Measuring the spacing to be considered while planting and a spacing of 8by8 was used to avoid competition.
- Planting holes were dug using a hoe and the top soil was separated from the sub soil since the top soil was to be used in covering because of its fertility. The size of the hole was 3 fits wide and 2 fits deep.
- Planting of the banana sucker was done and the top soil was used to cover the sucker



Digging holes



Planting banana suckers

3.1.2.3 Tomato management practices

Tomatoes belong to Solanaceae family and the variety that was shaded was indica f1 which has a maturity rate is 75 days and 21 days in a nursery bed. The size of the nursery bed was 1 m by 15m. With the aid of Mr. Hillary Asiimwe I carried different tomato management practices at RwebitabaZARDI and they were. Damping off is the most common disease that affects tomatoes in a nursery bed.

There are several nursery bed management practices carried out in tomatoes and they include the following

Sterilization about 1-metre-deep in the soil to kill pests and the soil borne diseases.

- Planting of different crops depending on the farmer's choice.
- Watering to increase the moisture level in the soil and avoid drying of planted seedlings
- Weeding to reduce competition for the growth requirements between the crop and weeds
- Manuring to increase the nutritional content of the soil.
- Shading to reduce the effects of adverse weather conditions like heavy rains and sunshine
- Hardening off so that the seedlings adapt the new environment

Tomato management practices carried out at Rweb ZARDI were shading weeding and transplanting.

3.1.2.3.1 Shading

This is the provision of a Shade to a plant in order to avoid adverse conditions. Shade construction was done by using sticks which were put around the nursery bed tied with banana fibers to strengthen the shade and then grass put on top. Shading is done to avoid adverse weather conditions like direct heat from the sun which may cause drying of the seedlings and also heavy rain which causes run off of the seedlings. Damping off is the most common disease that affects tomatoes in a nursery bed.



Tomato shading

3.1.2.3.2 Transplanting of tomatoes

This is the process by which seedlings are got from a nursery bed to the main garden. While at Rwebitaba ZARDI, we followed the following procedures while transplanting padema f1 tomato variety.

- The nursery bed was watered using a watering can to soften the soil and avoid root damage while uprooting the seedlings.
- Seedlings were uprooted and each seed contained a lump of soil that would provide turgidity while planting.
- Seedlings were put in a clean container and then taken for planting.
- The seedlings were planted in the holes made in the field prepared for transplanting

- Watering was done after transplanting so that the moisture level in the soil is increased which would help the newly transplanted seedlings grow



Transplanting of tomatoes

3.1.2.4 Management practices of potatoes

Irish potatoes belong to Solanaceae and they are solanum potatoes. They are root tuber crops with a growth maturity of 120 days and a spacing of 75cm by 30cm. Characteristics of a good Irish potato plant include having many eyes which increases the number stems which increase production and they should have a reasonable size with no damage. Activities in potato management involved at RwebZARDI were;

3.1.2.4.1 Field laying

Measuring and pegging was carried out using a tape measure, a rope and pegs. A spacing of 75cm by 30cm was used where the Irish potatoes were to be planted under the guidance of Miss. Aharinta Faith. I carried out pegging of the field where the Irish potatoes were to be planted and also learn different management practices in potatoes



Pegging of the potato field

The following are management practices that should be carried out in Irish potato production.

- Seed selection. The Irish seed to be planted should have many eyes for stem growth since the number of eyes determines the number of tubers. The Irish seed should be of a reasonable size which will easily germinate and produce many tubers. The Irish seed should also have no damage and free pests and diseases.
- Site selection. The site where Irish potatoes are to be planted should be with fertile soils well drained and on a gentle slope for easy management. The history of the area should be considered whereby they should not be planted in the field where Solanaceae family plants were planted for 4 years.
- Land preparation. This involves many activities such as primary and secondary cultivation to make the field ready for planting.
- Field marking, leveling and pegging to improve accuracy and easy management, measure the number of seedlings to be planted and the expected ones.

- Planting. Irish potatoes should be planted at a spacing of 75cm by 30cm and on farrows. Manure can also be applied such as NPK to improve root and tuber formation.
- Weeding and earthing up to avoid competition for sunlight, water and nutrients between the weeds and the Irish potatoes.
- Spraying using contact fungicides to prevent diseases such as M47 USIN ridomel. Other diseases include early and late blight bacterial wilt among others.
- Dehaoulming. This is a process of cutting off the leaves of Irish potatoes to avoid further growth and to avoid rot of the seed. It is done at 90 days of growth to avoid pilling off of the outer layer.
- Harvesting. This is done when the Irish potatoes have reached a maturity stage.

3.1.2.5 Agronomic practices in rice

3.1.2.5.1 Rice planting

Rice is a cereal crop belonging to poaceae family with a spacing of 30cm between rows and 2cm from one single plant to another with a rate of 3 to 4month depending on the weather. The variety of rice that was planted in Bunyangabo district under the supervision of Mr. Ssenyonga Peter was Namuche which is an upland variety with the maturity period of 4 months.

The following were activities I carried out while planting rice.

- Cleaning the field by collecting the vegetation that was cleared to provide a fine field for easy planting and germination was done using a rake.
- Measuring of the field using a tape measure, rope and pegs to demarcate the field to ease the management practices such as weeding, maturing and also to determine the number of seeds needed and expected yields.
- Making planting lines using a planting folk to provide accuracy in planting so as to regulate the number of seeds planted as well as easing the management practices like weeding, Manuring and harvesting.
- Sawing which was done following the lines made at a spacing of 2cm to reduce competition between the seeds

- Covering the sown seed was done to avoid pest attack such as birds and small amount of soil is used to ease germination.



Clearing the field



Making planting lines



Planting rice

3.1.2.5.2 Fertilizer application at Mubuku irrigation scheme in Kasese

Rice growing in Mubuku irrigation scheme is supported by water from river Nyamwamba and Mubuku River. Rice is planted on ridges to encourage water flowing and also avoid flooding since the area is flat and prone to flooding. The different stages of rice growth which includes tillering, podding, heading and filling. The different activities carried out in rice production are seed selection, site selection, vegetation clearing, making planting lines, sowing and covering, weeding, fertilizer application, harvesting and threshing. These activities are carried out to ensure effective rice production. Pests and diseases that affect rice are leaf miners, cut worms, ball worms and milk suckers they attack at different stages of growth. Rice bruist is the common disease that attacks rice.

Fertilizer application was done on nerica5 rice variety which was 1 month of maturity using top dressing method following the lines of the planted rice to avoid wastage of the fertilizers and this was done to increase the nutrient content of the soil to boost production. The fertilizers used were DAP which is di ammonium sulphate and helps in boosting a plant overall growth and development, increases the soil nutrient absorbing capacity and water retention. Urea was also

applied to increase nitrogen content in the soil which promotes green leaf growth and also make the plant strong.

3.1.2.6 Agroforestry

This basically in natural resource conservation and interactions, the tree crop, animal and insect interactions, natural species conservation/utilization of plant materials, fruits like: mangoes, oranges, apples, grapes, pawpaw, quavers. Activities such as grafting of fruit trees, tree nursery activities. The following were activities carried out at RwebZARDI.

3.1.2.6.1 Nursery bed management

A nursery bed is an area where seedlings are raised and cared for. It acts as a temporary storage for the seedlings before being taken to the main garden. Mr. Onesimus supervised me and I carried out nursery bed management to obtain health and vigorous mother plants, to obtain seedlings which are free from pests and diseases and also to get close seedlings. The nursery bed management practices carried out at RwebZARDI were nursery bed weeding, pruning and potting of coffee, avocado and mangoes.

3.1.2.6.2 Weeding of coffee seedlings

Weeding is the practice of removing the plants that grows out of place. Common weeds include black jack, wondering Jew among others. Kituza robsta 1 was the variety weeded and it has a maturity period of 18 months to first harvesting with a large green bean where by the seedlings were already in pots and arranged in a nursery and they had spent three months in the pots.

Reasons for carrying out weeding were:

- To avoid competition for growth requirements such as nutrients, water and light between the seedlings and the weeds.
- Weeding to avoid pests and diseases since weeds acts as hosts for the pests and this reduces the quality of quantity of coffee produced.
- Increase the quality of seedlings being produced.



Weeding Coffee



Weeding coffee in a nursery

3.1.2.6.3 Pruning of mango trees

This is the removal of excess branches and roots on a plant. Root pruning was Carried out using a socatore to cut the roots that have over grown and have come out of the potting bag. This was done to avoid root penetration of coffee before they are planted in the field.

Watering was also done after pruning to avoid drying off of the pruned mango plants and it was done using a watering can



Pruning Mangoes



Watering Mangoes

3.1.2.6.4 Potting.

This is the practice of putting soil in the potting bags where the seedlings from the nursery bed will be put. Seed potting is done after seedlings have been already established in a nursery bed and when they are over two months. I carried out soil measuring to determine the potting media with the help of Mr. Onesmus and I measured 4 wheelbarrows of soil 1 of sand and 1 for manure. The soil was sieved first before mixing it with sand and manure.

Procedures that followed when potting.

- Digging out the soil that is to be potted
- Sieving the soil to remove big particles which may cause compaction and also poor aeration.
- Determining the potting medium by measuring 4 wheelbarrows of soil, 1 for manure and 1 for sand to increase the nutrient content and avoid soil compaction respectively
- Putting of the soil in the bags and arranged in order.



Measuring soil.



Determining the potting media



Sieving the soil



Potting

3.2 Experience and knowledge gained

Since I personally engaged in several activities, the following were lessons learnt

I learnt that that hands on experience is effective on students' academic excellence

I learnt that field attachment creates a linkage between the students, farmers and extension officers

I also learn that field attachment enables students to learn more especially when doing practicals in the field.

3.3 Relevancy

Since field attachment equip the student with a hands-on practical farming to appreciate and transform theory into practice, I was engaged in different enterprises and I carried out different activities practically that I learnt theoretically such as milking, disease control, potting de-suckering among others.

3.4 Personal contributions.

I personally carried out cleaning of the dining and depositing of the waste products like the poplythene bags which contributed to biodiversity.

I actively participated in every activity that I was supposed to do like maize planting cassava planting and fish feeding and also cleaned the dining.

3.5 Evaluation of RwebitabaZARDI

3.5.1 Strength

Power: adequate supply of hydroelectricity power that is used in running electric machines such as computers, printers, milling machines among others and it is supplemented by a stand by generator and this promotes affectivity and simplicity work being produced at the institute.

Water supply: Adequate water provided by the nearby swamp and taps which is used to carry out different domestic work at the institute for both human and animals. Swamp water is also used for irrigation especially sprinkler irrigation to improves crop yields

Land: The availability adequate land that facilitates the establishment of a large number of enterprises such as crop production, apiculture, aquaculture, animal production among others and this increases the production level, better farming methods like shifting, cultivation and also encourages future expansion.

Partnership: There is different partnership which is a significant aspect in research for example the institute has partnership with different farming groups all over the western highlands and also the weather station that helps in daily programming of the institute activities since it consists of different weather equipment such as the Stevenson screen, wind vane, wind sock, anemometer and many others.

Staff. Rwebitaba ZARDI works with a wide range of department with experienced staff such as the director, advisory committee, human resource manager and the support staff who help in the proper running of the institute.

3.5.2 Weaknesses

There is over dependency on pesticides which have a long residual effect and this is a threat to the natural environment.

The institute lacks laboratories in most departments where laboratory analysis and experiments are made and this limits research.

3.6 Challenges encountered.

The following are challenges faced during my field attachment at Rwebitaba ZARDI.

Some specialists were not well informed about the drafted time table due to lack of prior information which affected field work activities.

The field supervisor had a health problem and he went through a serious operation and this negatively affected the supervision.

Unfavorable climatic conditions like heavy rainfall which would not encourage the running of some activities.

The time for field attachment was not enough to be engaged in all activities on the farm and this made some enterprises not being attended to.

Excess use of chemicals at the institute to carry out different operations also affected the field attachment since it was not in line with the course of sustainable agriculture.

CHAPTER FOUR

RECOMMENDATIONS AND CONTRIBUTIONS

4.0 Introduction

This is last but not least; this chapter of field attachment presents the conclusion and recommendations as seen below.

4.1 Recommendations

4.1.1 Recommendations to Rwebitaba ZARDI.

The institute should adopt sustainable organic farming where organic farming methods are used such as mulching to control weeds instead of using herbicides, use of organic pesticides like garlic and Neem other than pesticides and this will promote biodiversity since it is environmentally friendly.

The institute should carry out lobby funds from different sources such as nongovernmental organization to finance some activities on the institute and also in the construction of different structures such as laboratories and the library.

More research should be done on integrated pest management to combat the use of chemicals which are harmful to the environment.

4.1.2 Recommendations to the university.

The university should carry out pilot study before taking students for field attachment so that the institute prepares in advance to receive the intern students.

The one provided to students by the university is not enough for students to engage well in different enterprises on the institute.

4.2 Conclusion

The one-month period of field attachment has effectively been helpful due to the experience obtained that has increased my perfection since the theoretical work was put in practice by engaging in different enterprises to do different kind of activities in aspects of animal production, crop production, apiculture, aquaculture, agroforestry among others.

Therefore, Rwebitaba ZARDI is favorable for students to carry their internship and it should be continuously being included in the most useful places for internship training due to the good experience, environment and different enterprises on the institute.

Location of RwebitabaZARDI.



Introduction letter

AFRICAN RURAL UNIVERSITY (ARU)

Contact Office

Plot 617, Rubaga

Kibuga Block 4, Right-off
Southern gate

Main Office:

Kagadi Campus

P. O. Box 24



25/9/2023

Dear Sir/Madam

RE: REQUEST TO HOST OUR STUDENT FOR FIELD ATTACHMENT FOR THE PERIOD OF ONE MONTH ON YOUR FARM/ORGANIZATION

I hereby request your farm/ organization to host our student by names of BUKIRWA DIMINTIRIA registration number 21/ARU/BSSA/004 who is currently in year two of study. She is offering Bachelor of Science in sustainable agriculture (BSSA) of African Rural University.

The field attachment will enable our students to learn practical skills in the modern agricultural technologies, extension work, program development and farm management at different levels thus enabling ARU to graduate rural transformation specialists with the necessary knowledge and skills to meet the demands of both rural and urban farmers.

Thank you're in advance for accepting my request. Together we can transform our communities from subsistence agriculture to sustainable market oriented agriculture.

Yours faithfully,

.....

Ssengonzi Bagenda Jerome (D.Eng.)

Faculty Dean

Field attachment time table

**NATIONAL AGRICULTURAL RESEARCH ORGANISATION
RWEBITABA ZONAL AGRICULTURAL RESEARCH AND DEVELOPMENT
INSITITUTE**

P.O.BOX 96 FORT PORTAL

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Website: www.naro.go.og



Time Table for training Interns – September 2023

Date	Topics/courses	Resource persons
27/09/2023	Orientation	Mr. Agaba Hannington/Mr. Twesige Dominic
28/09/2023	Field lay out for pasture establishment	Mr. Gumaoshabe innocent
29/09/2023	Soya bean trial establishment	Mr. Turyahebwa Veleriano
02/10/2023	Vegetable production	Mr. Asimwe Hillary
03/10/2023	Cassava production	Ms. Asio Elizabeth
04/10/2023	Irish potato production	Ms. Aharinta Faith
05/10/2023	Vegetable production	Mr. Mutebi Douglas Jjemba
06/10/2023	Vegetable production	Mr. Mutebi Douglas Jjemba
10/10/2023	Maize production/Banana production	Mr. Mutebi Douglas Jjemba / Mr. Kazigye Francis

11/10/2023	Rice production	Mr. Ssenyonga Peter / Ms. Alituha Maureen
12/10/2023	Agroforestry	Mr. Mwesigwa Boaz
13/10/2023	Soil and water conservation	Ms. Namutebi Vivian / Mr. Mugenyi Lawrence
16/10/2023	Apiculture	Mr. Mugume Ronald
17/10/2023	Aquaculture	Mr. Mununuzi David
18/10/2023	Livestock production	Mr. Gumaoshabe innocent

Date	Topics/courses	Resource persons
19/10/2023	Report writing	Dr. Suubi Godfrey/Ms. Namwase Agnes
20/10/2023	Creative life orientation	Mr. Twesige Dominic
23/10/2023	Tea production	Mr. Kawooya Ronald / Mr. Mugisa Charles Veleriano
24/10/2023	Agric machinery	Mr. Mutebi Douglas Jjemba / Mr. Wasswa Kasiba
25/10/2023	Submission of the draft reports	Dr. Suubi Godfrey
26/10/2023	Review of the draft reports	Dr. Suubi Godfrey
27/10/2023	Final report submission	Mr. Mutebi Douglas Jjemba

Photos of some activities during the attachment

