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BUSITEMA UNIVERSITY

FACULTY OF AGRICULTURE AND ANIMAL SCIENCES

INDUSTRIAL TRAINING REPORT CARRIED OUT

AT

BULINDI ZONAL AGRICULTURE RESEARCH AND DEVELOPMENT INSTITUTE (BUZARDI) HOIMA

FROM
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INTERNSHIP COURSE CODE:

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A REPORT TO BE SUBMITTED TO THE DEPARTMENT OF AGRIBUSINESS AND EXTENSION AS APARTIAL FULFILMENT OF A REQUIERMENT FOR AN A WARD OF A CERTICICATE IN GENERAL AGRISCULTURE.

DECLARATION

I MUGANYIZI CHRISPAS hereby declare that the information compiled in this report is original and has been written by me representing my presence at the internship training that has been fully been conducted at BUZARDI.

SIGN:.....
DATE:16.../...05...../2022.....

APPROVAL

This report has been submitted for examination with the approval of supervisors.

Field supervisor

SIGN:.....
DATE:...../...../.....

Mr. Senabulya Steven

Soil fertility technician,

Bulindi Zonal Agricultural Research & Development Institute (BUZARDI)

Academic supervisor

SIGN:.....
DATE:...../...../.....

Mr. Muhindo William
Busitema University.

DEDICATION

I dedicate this report to my field supervisor Mr. Senabulya Steven who has been a key to the success of my internship training through the guidance he rendered to me.

I also dedicate it to the BUZARDI administration that gave us an opportunity to do my internship training and the support with the skills and knowledge given to us during the training.

Finally, to my parents that was my anchor towards the successful training that I have had.

ACKNOWLEDGEMENT

This report has been made possible by the grace of God who has granted us the free gift of life through the training.

I thank the administration of BUZARDI that gave us a privilege of being trained through this institution of agriculture. They made sure that we were supported by the technicians at the farm that help us attain different ideals of skills while in the field. I appreciate my dear superior in the field that made sure that I get the right information that I needed and also and supported me through his guidance

I also in the same way appreciate my beloved parents that were so much supportive financially through the training.

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BUZARDI	Bulindi Zonal Agriculture Research Development Institute
LACZ	Lake Albert Crescent Zone.
Kg	Kilogram
IT	Industrial Training
BBW	Banana bacterial wilt

ABSTRACT

The 10 weeks of industrial training was done at BUZARDI which is a public agricultural organization mediated to conduct and manage adaptive agriculture research development and disseminate improved agricultural technology relative to Lake Albert crescent zone. It covers all districts of Hoima, Masindi, Kibaale, Kagadi, Buliisa, Kikuube, Kiryandongo and Kakumiro.

The main objective of the attachment was to acquire practical skills, knowledge and experience in diverse fields of agriculture that help to broaden the knowledge of the theoretical approaches that we had learnt in class to the practice in the field.

The main objective of the field attachment was to obtain the practical skills, knowledge and experience the diverse field of agriculture that help to broaden the knowledge I learn in class and be able to apply it in the field. The different skills I attained at different sections that I attended include; identifying different injection sites of animals and how to do the injection, doing the castration that involved the removing of the male testis by breaking the sperm cords stop blood supply to the testis, dehorning, egg candling that involves the examining of eggs under light to identify fertility in eggs during artificial incubation, how to determine different chick malposition's, skills on pig restrain using a pig snare, grafting in agroforestry. All these activities were possible to attain since I did them practically hands on.

The entire internship program was successfully done however different challenges were faced along like harsh weather especially heavy sunshine and sometimes rains that used to hinder our Programmes, we also faced challengers of lack of pots to practically deal with indigenous microorganism in pigs. another challenge was the limited attention by some of the technician as they were at times committed to outside community outreach programs that left us with a gap in a achieving all things in time however the internship was generally interesting since we gotten a huge impact on our skills and were able to learn other things outside class like to conduct myself at the work place in terms of time and associations.

CHAPTER ONE

1.1 Introduction

This report compiles all the information about the background, structures, mission, vision, mandate and roles of BUZARDI. It also contains the information regarding the daily activities done through the training and their respective impacts towards my future career.

1.2 Historical background of BUZARDI.

Bulindi zonal agriculture research and development institute is one of the 8 public institutes which were established through NARS Act 2005.

It is responsible for carrying the applied and adaptive research in Lake Albert crescent zone and covers Midwestern districts of Hoima, Masindi, Bulisa, Kibaale, Kilyandongo, Kakumiro, Kagadi and Kikuube.

Bulindi ZARDI formally a district farm institute was elevated to Bulindi agriculture research and development center in February 2001 and changed into a fully-fledged zonal agriculture research and development institute in 2006.

1.21 Location

It is located in Hoima district Masindi Road in Kigungu village Bulindi town council, Kyabigambire Sub County.

1.22 Institute size

It covers 27 acres of land in Hoima District Masindi Road where the daily running of the institution takes place. This includes the administration structures like offices and laboratory and the biggest portion occupied by the farm i.e., plantations, demonstration fields and animal structures. It also has more land of up to 1950 acres of land in Kigumba Kiryandongo district.

1.3 Vision.

A competitive society supported by a dynamic agricultural research and innovation.

1.4 Mission.

To innovate for sustainable agricultural transformation in the Lake Albert crescent Zone.

1.5 Mandate.

Conduct and manage adaptive, strategic and basic agricultural research and facilitate the development and dissemination of appropriate technologies that address specific needs of the Lake Albert crescent zone of Uganda.

1.6 Departments.

The BUZARDI is clustered into 4 departments;

- The administration that has 3 clusters under including the director of research, the procurement and the human resource.
- The animal resource research program that compiles of the livestock
- The crop and natural resource research program
- The technology promotion and outreach program

Note: the 4 departments have a fully functional advisory committee that plays a role in streamlining the research work being implemented in Bulindi ZARDI.

CHAPTER TWO

2.1 Banana production (*Musa acumunata*)

This the main tutor of this program was Mr. Kigundu Andrew (Banana technician -BuZARDI).

2.11 Land preparation

The land is cleared by slashing all the bushes in the garden and herbicides applied to destroy all the weeds and pegging of the planting points is done at the spacing of 3m by 3m from plant to plant. The land can also be opened up by ploughing to destroy tree stamps and strong tree roots from the garden.

Considerations while making of the planting holes.

1. The peg should be maintained at the pivot of the hole to avoid moving off the row and whole depth at 60cm deep and 60cm width.
2. The top soil is dug out but separated from the sub soil since it contains more of organic matter.
3. The holes are left for a period of 3 weeks to allow the soil structure to stabilize.
4. The top soil is then mixed with fully decomposed manure and put back into the pit before planting to make more nutrients available for the plant.
5. At planting a basin like depression is left on every planting hole for moisture conservation.

2.12 Banana agronomic practices

Pruning.

This is done by cutting off the dried, buckled and diseased leaves from the banana plant. It is done to reduce the hideouts for pests like banana weevils.

De suckering.

This is the practice of removing excess suckers from the banana stool. At least 3 plants should be left per stool to reduce completion for the nutrients. Mother, daughter and granddaughter plants are the one preferable on each banana stool.

Removing of the male bud.

This is removed to reduce chances of disease transmission and also the completion for nutrients with the bunch fingers.

Mulching.

This is done to preserve moisture in the garden of bananas but also can decompose to provide manure.

Staking.
This is done to give support to the banana plant using a stick with a V shaped end to guard the plant from falling off due to excess weight by the bunch.

Note: all the equipment used like pangas, knives and others to reduce the chances of disease transmission.

2.13 Pest and disease management in bananas.
Pests
Banana weevils (cosmopolites *sordidus*)
Damages and signs caused on the plant.

1. The pest burrows into the comb of the banana creating tunnels the intercept nutrient uptake by the plant.
2. There is stunted growth.
3. Toppling of the plant at the color region of the plant.
4. Delayed fruiting.
5. Reduced banana bunch size.

Nematodes.
These are microscopic pests that attack the root system of the banana plant resulting into a yellow necrosis in the roots hindering nutrient and water absorption by the plant.

How to identify nematode attack in a banana field.

- A sucker is uprooted using an uprooting spear and 5 roots making at least 10cm obtained randomly from it.
- The roots are split and the necrosis portions are scored on each root accordingly and the roots scored represent the damage on the whole stool.

Control of banana pests

- By soaking of the planting materials into pesticides like carboforan.
- Soaking of the planting materials in warm water for a period of 30seconds to give uncomfortable environment for these pests to live.
- Soaking on cold water to suffocate these pests living in the combs like banana weevils is another option.
- Selecting planting materials from a pest free stool.

2.132 Diseases.
Banana bacterial wilt.

This is a soil born bacterial disease that is caused by *xansomonas viscola pv* and attacks mainly the cooking varieties of banana.

Signs of the BBW

- Barkling of leaves.
- Shrinking of the male bud.
- Discoloration of the vascular bundles.
- Rotting of the banana fingers

The banana fusarium wilt.

It is a fungal disease caused by oxyporum fusarium sp and attacks mainly the dessert varieties.

Signs of the disease.

- Yellowing of the leaves caused by the blocked water conducting tissues.
- Pure yellowing of the xylem vessels at splitting of the pseudo stem.

Control of the banana diseases disease.

- Plant resistant varieties (all the cooking verities are resistant)
- Sterilizing of the tools used like pangas.

2.14 Planting materials of bananas

The tissue culture where part of the banana plant are cut and given growth medium under controlled conditions. They are then potted, given care as they acclimatize to the weather conditions and eventually planted

The maiden suckers.

These are about 2m height and have started producing their own suckers.

The water suckers.

These are shorter than the maiden but have brood leaves with a smaller pseudo stem and are not recommended for planting because they lose much water and are not attached to their mother plant but instead they commonly exist on the combs where there has been a harvested plant.

The peers. These have just emerges from the soil and have not developed yet any foliage.

Bull head sucker. This is the smallest of all and is fully attached on the comb with no foliage.

The sword sucker. This is the one with narrowed leaves and highly recommended for planting since it is well attached to the mother getting all the support of nutrients. It is also not affected by water lose through leaves since they are narrow.

How banana planting materials are prepared before planting.

Comb pairing is done to reduce chances of pests and soil borne diseases like the banana fusarium wilt but also reduce bulkiness during transportation. Soils and the roots are all cleared off from the suckers.

Signs of maturity in bananas.

- Drying of the top leaves.
- Change in color of the fruits from dark to light green.
- Falling off of the flora end of the fruit by a light touch.
- The mature fruits become plumpy and are all filled up.

2.15 Banana varieties

Categories	Varieties
Cooking varieties	Nakabululu, Nfuka, Muvubo
Brewing varieties	Kayinja, mbide, Kisubi
Roasting type	Gonja
Dessert varieties	Bogoya, Ndizi

Harvesting of bananas

It is done by making a V cut in the pseudo stem and pull the plant by its leaves gently.

Banana human breeding in bananas

This is done on the different banana varieties with desirable characteristics like bunch size, test and maturity period plus resistance or tolerance to diseases.

How it is done.

Female flowers are rubbed on the fertile male part of the banana that changes the characteristics on the bunch. Breeding in the laboratory is done by obtaining seeds from a given plant fruits and then taken to the plant breeding laboratory. This is where the growing part is abtained from the seeds and mixed with those that have the desirable traits and then given growth medium and supported to grow.

2.2 Maize production (*Zea mayz*)

2.21 Ecological requirements

This is a cereal crop that grows best in well drained, aerated and deep loam and silt soils
Soil PH of 5.0-7.0
Altitude of 0-2900m
Rainfall of 200mm well distributed annually.

Common maize verities Hybrid varieties include DH, Long 9H, Longe10H that is high yielding, and Longe 11 H from Namulonge research station. Open pollinated varieties include; LONGE1 that has some tolerance to foliar diseases, Longe 2, Longe 3, Longe 4, and Longe 5 has more of protein qualities and tolerant to foliar diseases.

2.22 Land preparation.

The soil can be sprayed and planting stations dug or can be opened up to destroy the weeds and tree roots and stumps from the garden to come up with a fairly rough seed bed. The first ploughing is done 4-6 weeks before the anticipated time of ploughing and more ploughing is done to destroy some of the perennial weeds that tends to come up.

Considerations while planting maize

In more fertile soils, there is a consideration to close spacing and the reverse is true. There are 2 plants per hill by hand planting and 1 plant by machine planting. The spacing should be widened dependent on machine weeding.

2.23 Maize spacing.

75cm by 30cm and 1 seed per hill
90cm by 30cm and 1 seed per hill
75cm by 60cm and 2 seeds per hill
Considerations at planting and after maize emergency

Thinning and gap filling

This is done to reduce competition that would be stimulated by over plant population and done during the first weeding. Gap filling is also done at this stage to fill the gaps where some seedlings have not emerged.

2.24 Fertilizer application.

Di ammonium phosphate at planting by contact placement and with little soils covered on the fertilizer drop to avoid burning of maize. Urea is applied when maize has reached at least 1m (knee height) to provide the plant with nitrogen to promote green leafy growth and make the

plant look lush. NPK can also be applied at flowering and silking stage that increases the size and quality of maize

2.25 Weeding

Weeding should be done as soon as they emerge to enable the maize escape since it is always vulnerable at the sage after emergency.

2.26 Pest and disease management

Pests

- Termites that tend to eat up maize roots and can be controlled by the application of carbofuran.
- The fall armyworm where its larvae tend to feed on the leaves of the plants creating the effect of window whorl killing the growth point hindering formulation of cobs in young plants. This can be controlled by spraying with profenofos cypermethrine, emamectin benzoate and other prescriptions.
- Cicadulina mbila
- Monkeys and others.
- Maize stalk borers. This enters the whorl and damages the young leaves that grow with a characteristic of Frass in the funnel in combs. It can be controlled by spraying using a systematic pesticide like dimethoate and cypermethrine.

Diseases

The maize smut

This is a fungal disease caused by Ustilago maydis that are spore that survive for some years in the soil and corn residues.

Signs and management

- There is abnormal growth on the tassels
- Galls commonly developed on ears, leaves, stalk or tassels that are initially covered by white to silver tissues. 8

The maize smut can be controlled by removing galls before they mature and roughing.

Maize streak disease

This is a viral disease caused by leaf hoppers with manifested circular spots on the leaves on the lowest exposed portions of young leaves. This can be controlled through early planting.

2.27 Signs of maturity in maize

Hard grained

Uniform drying of the leaves and drooping downwards.

2.28 Post harvesting in maize

Maize is harvested and dried on the Taplin to avoid foreign materials and avoid moldings due to higher moistures and maize is dried up to 13% -14% moisture content.

The shelled maize is stored in a hermetic bugs and silos and the unshelled maize is stored in cribs.

2.3 Coffee production

Planting of coffee is at the spacing of 6m by 6m and hole size of 2ft by 2ft Consider very rich fertile loam soils.

Management practices.

Coffee training that is done at 9 months to allow the development of more or new shoots.
During this, at least 3 prominent shoots are left and the rest are eliminated.

2.31 Pruning and desuckering.

This is done to reduce the hiding places for pests. Like mealy bugs and others.

2.32 Stumping

This is considered when it reaches 10 yrs. and it is based on the acting baring heads.

2.33 Coffee pests

- Paired caterpillars.
- Mealy bugs
- Black coffee twig and others.

2.34 Common diseases

- Coffee leaf rust
- Coffee wilt disease
- Coffee blister

2.4 Rice production

This was all comprehensive work in the study books that we were given about rice production. We had a rice field demonstration to determine the yields attained at different months using different rice varieties like NERICA 1, 2 that were grown in different aligned plots. We had a second demonstration to determine impacts of agronomic practices like weeding, fertilizer application that were also done according to months as guided by the field map we had. It was done at the spacing of 12cm by 30cm.

Things we considered during the activity. Prepared a fine seedbed and eventually created smaller plots that held different rice varieties dependent of the map guidance we had.

Applied carboforan that if a pesticide to control pests like termites that were presence in the field. We also prepared guard rows that is one way on minimizing loses to pests because it acts

as a trap crop method. Holes were not too deep neither shallow to avoid cases of seeds that are stolen out by birds or delayed germination. We as well harvested and threshed the lowland rice using the manual thresher.

2.5 Agroforestry
Activities done.

2.51 Grafting
This is the science and art of joining two plants of the same specie to grow as a single plant.

Materials used

- Grafting knife
- Grafting tap
- Mango root stalk and scion.

Procedures

1. We used whip method to graft mangoes where we made slanting cuts on the mangoes stalk and scion and joined them together.
2. The joined parts are tied tightly with a grafting tap and finally the stalk is wrapped up to the joint to avoid disease infestation through the cuts made.
3. Considerations during grafting
4. A length of at least 30cm if left from the neck of the stalk to the point of cut to avoid disease infestation in the grafted plants.
5. Join plants of the same species and of the same circumference.

2.52 Potting.
It is about packing of the treated soil into the potting bugs for planting.

Considerations.

- Pots must have holes at the bottom to facilitate drainage of water.
- The soil used is always the forest soil, the loam soil and sandy soil at the rate of 3: 2: 1.
- Pots are not over filled up with soil to avoid loss of seeds during the watering process.

2.6 Vegetable production
In this section we covered tomatoes, water melon and cabbage however we were given more details on the production of other vegetables through chat to read.

2.61 Production and agronomy of vegetables
Nursery bed preparation considerations we took
It is set at a measurement of 1m width and any preferred length
We used a raised nursery since there was enough rain.
We considered creating a shade to protect our vegetable seedlings from the harsh weather conditions that helped us to successfully reach the transplanting stage however there was acclimatizing a day before we transplanted.

We also considered watering in the morning and evening.

Before transplanting of water melon, we created beds of 1m width and at a preferred length, 1m between closely beds and a spacing of 3m between the 2 closely beds where vegetative growth is transferred to and fruit from.
We also applied DAP at planting to enhance root development.

2.7 Soils fertility management

2.71 Considerations while applying fertilizers

- Right source.
- Right rate. Here, soil test report is seen through before applying fertilizers
- Right time. It is depending on the action of the fertilizers on the plant.
- Right place.

2.72 Fertilizer application methods.

- broadcasting
- band placement
- spot method
- deep placement

2.73 Soil sampling

This is the process of a small portion of soil samples that is sent to the lab to determine nutrient content.

Materials used.

- Global positioning machine.
- Soil augur.
- Hand hoe.
- pen and paper
- bucket.
- plastic paper

Method of soil sampling

- Random
- Transect
- Zigzag method.

We used the transect method to collect our soil samples.

How.

Samples are picked following a transect running from one corner to another and soils on ant hills are not picked.
The soils collected are put into the container and divided into 4 halves one kg is remaining.

Picked samples are then packed and given sample numbers.

3.8 Field setting

We did land marking as internship students under supervision of the crop technicians.
The tools used were; strings, tape measure, pegs, pangas.
To establish straight lines called the baseline, we used a Pythagoras theory where we set the field to plant adaptive demonstrations of beans (climbing and bush type varieties) that where we divided the plots based on the mapping of the field.
Naro bean 1, 2, 3.
Nabe 1, 16 and 18.
These had a variation in spacing dependent of the growing nature where creeping beans had a spacing have a spacing of 50cm by 20cm and staked at in the midst of 4 plants to avoid toppling by wind that we did when they had established and bush type has a spacing of 50cm by 10 cm.

Goat management

Castration

This is removal of the male testicles of animals. There are two types of closed castration which are burdizzol and rubber ring method.

Burdizzol

How a burdizzol is used

1. Restrain the animal and cast it down.
2. Position the spermatical cord on one side and open the burdizzol and fix the scrotum neck into the burddizol head and squeeze till the cord breaks that cuts off the blood supply into the testicles.
3. Repeat the process on the other side of the scrotum.
4. Finally apply the antiseptic spray on the scrotum to reduce chances of infections.

Using a rubber ring

It is stretched by the rubber ring elastrator and put onto the scrotum of the animal to cut off blood supply into the testicles. This is done in smaller animals like goats, sheep and others.

Open castration

Equipment used

- Cotton wool for wiping the scrotum of the animal
- Surgical blade that is used for making a cut opening
- Gloves
- Clean water
- Soap
- Antiseptic spray

- Penicillin that is an antibiotic against bacterial infections

Procedures of open castration

1. Restrain the animal and cast it down in a manner the scrotum will be exposed to the one working
2. Wear gloves and wash the scrotum with clean water and soap to avoid infections that may enter through the cut from a dirty fur.
3. Hold the scrotum and make a single cut and pull the testicle outside gently.
4. Rub the spermatic cords against fingers or against a blunt side of the blade to completely remove the testicle off.
5. Repeat the process of the other side of the animal and finally apply an anti-septic spray on the wound to keep away flies.
6. Inject penicillin against bacterial infections through the wounds.

Why castration

- Prevent unplanned mating.
- To reduce aggression to increase safety on the farm.
- Produce meat with a consistent quality especially in goats.
- Decrease costs of managing bulls on the farm.
- To get rid of bad traits on the farm.

3.12 Ear tagging

This is the practice if applying ear tags on the animals for easy identification.

Equipment used

- Forceps
- Ear tap applicator

Procedures and consideration

1. The female forceps if put to the ear tag plate and the male on the sharp point or stainless steel.
2. Consider the female part being in side of the fore part of the ear to avoid animals injuring their eyes.

3.13 Dehorning

Materials used

- Dehorning saw
- Dehorning wire.
- Dehorning iron.
- Chemical dehorning like calcium or sodium hydroxide.

Why dehorning

- Reduce risks of injuries or bruises by animals to their fellows or to the farmer.
- Produce docile animals that are easy to handle.

It is a supply to the manufacturing industries like the butting making and therefore it is a raw material.

3.14 Hoof trimming

This is done using a sharp trimming knife and it is to reduce bad posture in goats.

3.15 Deworming

This is the giving of anthelminthic drug to an animal helping in getting rid of helminthes parasites to increase on production.

Examples of anthelminthic

- Albendazole for all internal parasites
- Ivermectin for both internal and external parasites

3.1 Pig management.

Pig restrains using a snare during injecting of ivermectin.

3.11 Making of the indigenous microorganism for pigs

IMO is a homemade microbe mixture that fosters a rapid anaerobic digestion of waste. It keeps away the smell from the pig units.

Materials used

- A clay pot
- Organic rice
- Molasses

Procedures

1. A given amount of rice is boiled without any ingredient.
2. It is let to cook on any clean surface and packed in a clay pot.
3. The pot is covered on top with a black polyethene of cloth.
4. The pot is then buried in the soil under tree with a heavy canopy for to avoid the percolation of water into the pot for about 3-4days.
5. Un burry the pot and add a portion of molasses or sugar, mix it thoroughly and keep it in a cool dry place for a period of 7days and watch over it till it changes the colour that must be black.
6. Then mix a smaller portion of the content in water at a ratio of 1:2 and then sprinkle in the piggery system

3.3 Beekeeping

Under this section, we identified different hives used in bee keeping.

The bee hives we looked at include;

3.31 Traditional beehive

the log hive made from locally available materials like grasses, tree logs and others.

Advantages of these hives

- Materials are locally available.
- They produce more propolis.

Disadvantages

- They are hard to inspect.
- Breaking of combs at harvesting.
- Contamination of the honey combs is common.

3.32 The transitional bee hive;

The Kenyan top bar hive. It is made with 3 chambers; the brood chamber where the queen stays and lays eggs, the groove chamber and the honey chamber that is situated at the end of the hive.

Advantages

- Easy to inspect.

Disadvantages

- They can easily be colonized and unified.
- Expensive compared to the traditional hives.
- A lot of skills needed on manufacture and operation.

3.33 The modern beehives

like the Lang troth. It has 2 chambers; the honey chamber that is on top pat of the hive and the brood chamber down where the queen stays. There is a queen excluder to prevent it crossing to the honey combs that prevents contamination of honey with brood.

Site selection when setting up an apiary.

- Accessibility of the place to ease supervision.
- Availability of forage.
- Availability of water
- Pest. The area should be disease free.

Harvesting and protective equipment used.

Table 1 protective equipment used in bee keeping

Protective gears	**Functions.**
Bee shoot and veil	To protect the person from bee stings.
Hand gloves.	To avoid burns while smoking
Gumboots	Used to protect legs especially where the hive is in the bush.

Table 2 Harvesting equipment in bee keeping

Harvesting equipment	**Function**
Smoker	For smoking bees to make them calm by losing their sense of smell
Bee brush	For brushing Away bees from the comb during inspection.
Air tight bucket	For collecting and transportation of honey combs to the processing area.
Hive tool	For opening hives

Bee products that we were able to handle

Wax. This is made out of the comb chunk by soaking it in water for 1day to remove sweetness. It is then put in water and boil eventually melt it. There is sieving and wait after a day when it solidifies then make any shape.

Bee venom. This is gotten from bee stings.

Propolis. It can be processed into a medicine through soaking it in water or ethanol packed in a Jeri can covered on top for a period of a 3months but with a daily shake that works on ulcers on wounds and others.

Processing method s of honey.

- Drip and setting method.
- Get a bucket, tie cloth on the bucket using a rubber band.
- Put a hip of honey combs and let it drip into the bucket.

3.4 Fish faming

Here, we were able to do the fish sexing because the farm only deals in breeding. This was done through identifying the male and the female sexual organs of fish that differed in shape and color. The male had a protruded vent that is pinkish to attract the female fish for mating. Female fish have a flat vent.

We as well transferred fish from one pond to the other that had herpers using a perforated bucket. Fish we dealt with was Cut fish and tilapia

3.5 Poultry management

3.51 Chick sexing

This is done using a consideration of wings where the females have short alternating feather alignment whereas the males have the wing feathers that are flat at the same gauge.
Artificial incubation of local chicken.

3.52 Hatchery management

Investigating failures when hatchability is low
Parameters during the period of incubation.

- Temperatures of 99°F – 100°F and both the that of the eggs and the environment in the incubator are detected.
- Water to humidify the air in the incubator.
- Automatic egg turning is for allowing the diffusion of gases inside the eggs and between eggs and the external environment.

Malpositioning
in eggs during incubation and cause to low percentage hatchability.
Head between the thies.
Head in the smaller end of the egg.
Head turn to the left.
Beak away from the air shell.
Fist over the head.
Beak above the right wing.
Normal hatchability positioning of a chick in the egg shell.
The spine of the embryo runs parallel to the long axis of the egg.
The beak is poisoned underneath the right wing.
The tip of the beak is directed to the air cells.

Egg grading
This is done to detect the clear eggs that would produce at least 85% hatchability and these are the qualities considered; Consider keenly to eliminate out all eggs with hair lined eggs because they tend to burst in the incubator. Blood of fecal stained eggs are not considered for incubation or they are cleaned with ethanol and cotton wool

Eggs candling.
This is the process of holding a strong light below or above egg to observe an egg embryo. This is normally done access egg fertility done after 4days of incubation and normally transparent eggs are always infertile and opaque eggs observed are always fertile.

Chicken enumeration.

This was done to collect data on the birds that were released out to different farmers by considering different aspects like the shanks color, weight, sex and others that were important on monitoring of these birds after a given period of time.

Brooding. This is the period immediately after hatch when special care and attention must be given to chicks to ensure their health and survival till their bodies are able to generate their own temperatures and it should be ready at least 24hrs before the survival.

3.53 Requirements for brooding

- Soft board that is made in a ring form to avoid suffocation of chicks that tend to converge in corners.
- Charcoal stove that provides the source of heat that is maintained at approximately 35^{oc} and there is always the reduction of 36^{0}c reduced each week till the room temperature is same to the ambient temperature.
- very high temperatures are always realized when chicks are scattered in the brooder whereas when chicks tend to converge around the source of heat, it indicates temperatures are very low in the brooder.

3.6 Pasture establishment and management

A pasture is plant naturally or planted singly or in a mixture to feed livestock.

3.61 Types of pastures

Grass and fodder trees.

Under

- Legume pastures include; Centrosema, Mucuna, Lablab and others.
- Pasture grasses include; Rhodes grass, Brach aria, Napier, and others.
- Fodder trees include; Calliandra, Lucina, Giliricidia, Sesbania and others.

Factors involved in pasture establishment.

- Soil testing to analyze the nutrient composition.
- Seed bed preparation.
- Sowing time.
- Selecting pastures adapted to a specific area like Chloris Guyana adapted to dry areas.
- Seed quality.
- Propagation method.
- Fertilizer application.
- Sowing depth

3.62 seeding rates of pastures grasses

Chloris Guyana 6-10kgs/acre

Napier 10-15bag/acre

Congo signal 10-15bags/ acre
Guinea grass 10kg/acre
For legumes
Green leaf desmodium 1-2kgs/acre
Centrocema 3-4kgs/acre
Alfalfa 4kgs/acre

Table 3 Some of the pasture strength and limitations

Pasture	Strength	Limitations	Establishment	Spacing
Glories Guyana	• Widely adapted to drier conditions • Has a few pests and diseases • Good seed production	• Seeds are hard to sow • Not adapted to acidic soils • Low tolerance to water logging	Vegetative or seed propagation and on surface not more than 2cm	50cm-1m between rows
Congo signal	Well adapted to acidic soils	Low seed production	Propagated from seed	a continuous shallow fallow and 1m between them.
Guinea grass	Very leafy	Requires fertile soils	By seed and on surface not deeper beyond 2cm	
Napier	Propagated easily	Older stems and leaves are unpalatable	Stem cutting With at least 3 nodes and let 2 nodes face down for roots and 1 upwards for the shoots	1m by 1m spacing is recommended
Mucuna(velvet bean)	Faster growing	Low palatability of foliage		90cm between rows and 40cm between plants in the same row

CHAPTER THREE

3.1 Impact of the attachment

The chapter majorly conveys the distribution of knowledge, skills and attitudes. It also shows whether the skills were new or not and comparison of IT in relation with classroom work.

Knowledge, skills and attitudes gained.

- I gained the skills on grafting particularly cleft grafting.
- I acquired a skill and knowledge on soil sample collections and it's considerations.
- I attained the skills of brooder preparation.
- I got skills on castration and the knowledge on what is considered during it.
- I also attained knowledge on what is considered while collecting Napier planting materials where at least 3 nodes are left where the two faces down that develop into roots and I upwards to form the shoot.

3.2 Relationship of the IT with classroom work

The industrial training was related to the classroom work in that it portrays the theoretical knowledge in classroom into practicals on the field. The industrial training was more of practical than theory however the little theory we hard was to only backup practicals we had.

The IT equips learners with practical skills unlike the classroom work which equips with theoretical knowledge.

The skills I acquired during the IT influences my future career in the way it has imparted with the skills that I exactly is needed in my field.

CHAPTER FOUR

4.1 Conclusions

In conclusion, internship was successfully done and it was beneficial and interesting that I acquired both field and practical skills as my main objective of acquiring practical knowledge was achieved regardless of the few challenges we went through.

4.2 Recommendation

Recommendation to the University.

- I would recommend that let there always be a fair internship fee that would favour all students.
- I would also recommend the University that let there be a proper schedule depending on the planting season to favor crop students because the internship we have done started preseason that gave us difficult to reach the field for some weeks.

Recommendation to the institution

- I would recommend the institute to always give students a chance to always as well reach out to community farmers that the institute serves under the guidance of different technicians to see the different cases out and how they are always handled.

APPENDICES

WORKER PLAN FOR THE ACTIVITIES CONDUCTED DURING THE INTERNISHIP

DATE	ACTIVTITY	RESPONSIBLE PERSON	REMAKES
WEEK I	Banana production & management	ANDREW KIGUNDU & STUDENTS	WELL DONE
WEEK 2	Field making & Rice production.	STUENTS AND ANDAMA BRANDONEL JOAHSON	WELL DONE
WEEK 3	Maize production	AHUMUZA JASPER & STUDDENTS	WELL DONE
WEEK 4	Soya bean production	MRS. ANNER AND STUDENTS	WELL DONE
WEEK 5	Vegetable production	AHUMUZA JASPERS & STUDENTS	WELL DONE
WEEK 6	Agro forestry	MRS. MUGABI DOREEN & STUDENTS	WELL DONE
WEEK 7	Soil sampling	STUDENTS & SENABULY STEVEN	WELL DONE
WEEK 8	Pasture production & management	ASEKENYI LYDIA & STUDENTS	WELL DONE
	Goat production & management	ASEKENYI LYDIA & STUDENTS	WELL DONE

	Aquaculture APICULTURE	ZAABWE THADEUS, MUKURU IVAN AND STUDENTSS RESPECTIVELY	WELL DONE

APPENDIX 2 PHOTOS

Figure 1 Planting of maize.

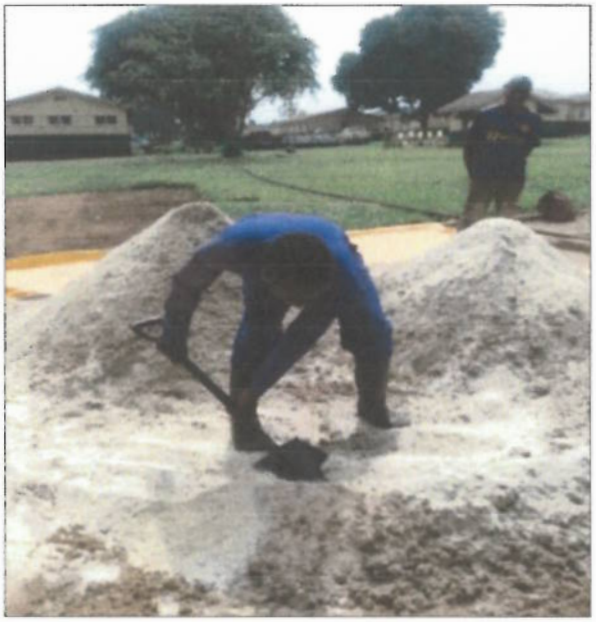

Figure 2 Feed formulation using the ground method

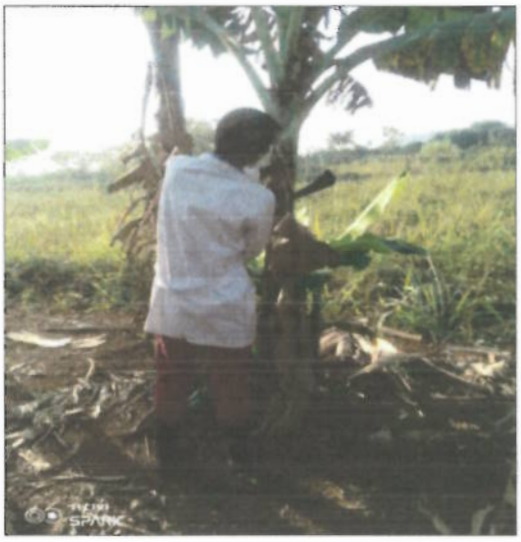

Figure 3 Pruning in bananas

Figure 4 The Napier planting materials

Figure 5 Honey harvesting during a session on beekeeping.

Figure 6 Castration of goats

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09

INDUSTRIAL TRAINING WEEKLY LOGBOOK

NAME: MUGANYIZI CHARLES

REG. NO. Bulup/2014/2142

1st Week ....From 28th/02/2022 — 4th/03/22.....

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
28/02/2022	Arrival and handing in requirements	It was to enable me report to the office and get registered as one of the internorship stubdi s	MUGANYIZI CHARLSPAS.	Actively participated in all activities
01/03/2022	Moving around different sections in BUZARDI	know their location and findout different theories learnt in class.	Atwine Grad Waman i Allan	
2nd/03/2022	Orientation by the internorship coordinator -Harvesting of maize	Enabled me to know the principles by which Buzardi stands	MUGANYIZI CHARLSPAS Kunihira Jessy Tibugwa Simon Katuscabe Musa	
3rd/03/2022	-Agronomy of Banana and collection of data, -collecting of soil data in the potted Amaranthus in the green house	This enabled me to know the best way to do agronomy in banana because it was hands on like pruning, removing male bud, desuckering and others	Mr Kigundu Andrew (Technician)	
4th/03/2022	collecting data on different stools of Banana Banana management practices like pruning, desuckering and deb removal of male buds.			
~~7th/03/2022~~	collecting of soil data from potted Amaranthus determining moisture contents.			

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10 MAY 2022
HUMAN RESOURCE AND ADMINISTRATION OFFICE

Name: MUGANYIZI CHARLSPAS. Reg. No. BU/UP/2021/2142

Class: Certificate in general agriculture. Signature: .....

2nd Week: 7th/03/2022 – 11th/03/22

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
7th/03/2022	Collecting of soil data from potted Amaranthus determining their capability to hold water capacity in absence & presence of hydrogen.	Enabled me know how water can be held in soil in presence of hydrogen and its absence and how to determine it.	Mr Onzima (Technician) Muganyizi Christpas. Tibagwa Simon. Mr Kigundu Andrew (Technician)	Actively participate in all activities
~~8th/03/2022~~	~~Women's day (p.H).~~ Disease Identification in Bananas and control plus pests in Bananas.	Enabled me to identify diseases in the banana field and how to prevent them.		
8th/03/2022	Women's day (p.H).			
9th/03/2022	Watering of potted ~~vegeta~~ bles (tomatoes, green papers, Nakati and others in green house).			
10th/03/2022	Harvesting and threshing of low land rice.	This enabled me know ~~the~~ some of the post harvest activities on rice to maintain its quality.		
11th/03/2022	Data collection on soil.			

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Name: MUGANYIZI CHRISTPAS Reg. No. BU/UP/2019/2142

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3rd Week: From 14th/03/2022 — 18/03/22

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
14th/03/2022	Attended asession on animal health. Tips on how to operate an automated chick incubator (hatchery technology).	- Become well vast with different diseases how they spray and control. - To know the key factors considered while operating an incubator like temperature	Mrs Asekenye Patricia. - Muganyizi Chrispus - Tibagwa Simon. - Atuhaire Grad - Katusabe Vawsa. - Ivan (Technician) - Wameni Allen.	Actively participated in all activities [signature]
15th/03/2022	planted different rice varieties to determin production at different alternating months. Asession on horticulture production.	- knowledge about spacing of rice. knowledge on vegetable agronomy from seedbed preparation, planting and management		
16th/03/2022	Nursery bed raising producing ~~egg plant~~ green papers. -Agronomy of maize session	- Acquire knowledge on the best fertilizers for maximum production of maize.		
17th/03/2022	-watering of nursery beds. - Data collection in goats i.e age, weight, breed and colour. - Deworming and treatment through injection of diminazene diaceturate.	- To know the best dewormers used in goats and how they're applied in terms of dosage		
18th/03/2022	Asession of soybean production			
18/03/2022	Feed formulation.	To know the considerations while feeding		

Name: MUGISHA [illegible] Reg. No. BU/UP/2019/2442

Class: Certificate in general agriculture Signature: [signature]

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4th Week: 21st/03/2022 — 25th/03/22

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
21st/03/2022	pasture establishment and management. Watering of nurseries.	To attain knowledge on the best pasture production and those best for animal feeding.	Mrs Aserenyu patricia. - Muganyizi Chrispas. - Katusabe Musa.	Actively participated in all activities
22nd/03/22	Fish harvesting (fishing). - Transfer of fish into heppers situated in the new pond.	- To know the best practices done in nurseries. - To know how fish is introduced into water using a bucket. - Determine the fish sex and species.	Atwine Grad. - Kunihira Jessy	
23rd/03/22	Field marking.	Field marking was to enable have accurate planting interms of spacing and seed rate.	Mr Zaabwe Thadeus, Mugenyizi Chrispas, Tibasiimwa Simon; Mr Musiime Rogers, Mugenyizi Chrispas, Katusabe Musa.	
24th/03/22	Field marking.			
25th/03/22	Egg handling to prepare for hatchery.	To know the best eggs that should be put in an incubator.	- Mrs Aserenyu patricia. - Mugenyizi Chrispas. - Katusabe Musa. - Ayesiga Kare.	
~~26th/03/22~~				

BULINDI ZARDI HUMAN RESOURCE AND ADMINISTRATION OFFICE 10 MAY 2022

Name: MUGENYIZI CHRISPAS

Reg. No: BU/UP/2019/2442

Class: Certificate in general agriculture

Signature: ....

5th Week: 26th/03/2022 – 1st/04/22

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
28th/03/22	-Chick sexing based on wings -determining hatchability percentage in the incubator chicks. -Debeaking in goats. -Feeding of goats. Antihelminthics -Identifying different dewormers Assessment of fertility in eggs. -Examining hatch debris. -Looked out for different malpositions of unhatched chicks. -Egg grading. -planting of maize. -creating of beds for transplanting vegetables. -planting of beans in the demonstration plots. -making of propolis drug. -How to smoke hives -how to use different equipments during bee production. -coffee establishment. -disease identification.	To know the number of different males and females reep on the farm. To eliminate internal helminths. To determine how best chicks can be produced without losses. -To encourage hygiene on the farm. To know about spacing and requirements at planting of maize. To know the best ways of vegetable prod To enable me have knowledge of spacing and varieties of beans To attain skills on the running of bee project. To know how best I can do in coffee	Mrs Asherenyu patricia (Technician). -Mwiganyizi Christopus. -Tibaguma simon. -Ivan (Technician) -Mwesiime Rogers (Technician). -Wamani Allan (student). -Katusabe Winnie. -Kunihira Jessy	Actively participated in all activities

BULINDI ZARDI
10 MAY 2022
HUMAN RESOURCE AND ADMINISTRATION OFFICE

Name: MWIGANYIZI CHRISTOPHER Reg. No. BU/UP/2019/12462

Class: Certificate in general agriculture Signature:

6th Week: 4th/04/2022 — 8th/04/22.

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
4th/04/2022	Transplanting of tomatoes. planting of pastures.	Knowing the tomato spacing and other agronomy knowing palatable pastures for animals.	Katusabe Musa Mugunyizi Chrispus Wamani Allan Kunihira Jessy	
5th/04/2022	Deworming in pigs pig restrain		- Asekenye patricia - Wani	
6th/04/2022	Spraying of fungicides in vegetable field.	Enabled me to identify different fungicides like the curative and preventive and their cases.	- Jasper (AFM) - Mugunyizi Chrispus - Kunihira Jessy - Pea	Actively participated in all activities
7th/04/2022	planting of different rice varieties in a demostration field to help determine the impact of different agronomy torice. - pesticide application (carbofor-an). - plot marking and preparation.	It enabled me to know about the best planting ~~time & any~~ agronomy improves rice production - Applied carbofo-ran was to control agest pests in the soil therefore I got to learn it's relevance. ~~How~~ I learnt attaining plots using a bench line.	Farm manager. Mr Musiime Rogers. - Mugunyizi Chrispas - Tibagwa Simon - Katusabe Musa - Wamani Allan	
8th/04/22	———			

Name: Mugabi Hilda Grace (?)

Reg. No. BU/UP/2021/2442

Class: Certificate in general agriculture

Signature: [signature]

7th Week: 11th/04/2022 — 15th/04/22

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
11th/04/2022	Banana field setting.	To enable me be able to get a correct field measures that determine right spacing and plant population.	- Mr Kigundu Andrew. - Mugamyizi Chrispus. - Tibagwa Simon. - Katusabe musa - Wamani Allan	Activity Participated
12th/04/22	Dehorning in goats. Castration in goats. Ear tagging.	It has equiped me with these basic management skills in animal production that I can intum execute to community farmers.	- Mrs Asekenye Patricia. - Mr Ivan (Technician). - Mugamyizi Chrispus. - Tibagwa Simon.	[signature]
13th/04/22	Weighing goats. Treating of goats.			
14th/04/22	Spraying of goats.	This is to control external parasites that spread diseases or cause loss in quality.	- Katusabe Musa - Wamani Allan.	
15th/04/22			-	

Name: Mugamyizi Chrispus.   Reg. No. BU/UP/2019/2142

Class: Certificate of general agriculture.   Signature: [signature]

8th Week: 18th/04/22 — 22nd/04/22.

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
18/04/22	—			
19/04/22	—			
20/04/22	- Soil sampling and testing. - Assession on soil nutrient requirements and how it is achieved.	This gave me the basic knowledge on how to pick soil samples from the afield using different method I also attained the knowledge about different inorganic fertilizers and it can be applied, rate and time	- Mr Senabulya stephen - MWIANYIZI CHRISPAS - Katusabe MUSA. - Atwine Gad - Tibagwa Simon.	Active by participants in all activities
21st/04/22	preparing of mango scions.	It gave me a basic on how I can improve mangoes and other kinds of trees how it's done based on consideration and materials used.	Mrs Doreen (Technician) mugonyizi chrispas. katusabe musa. Atwine Gad	
22nd/04/22	Grafting			

BULINDI ZARDI
18 MAY 2022
HUMAN RESOURCE AND ADMINISTRATION OFFICER

Name: MWIANYIZI CHRISPAS Reg. No. BUU/2019/ 2019/21/42

Class: Certificate in general agriculture Signature:

9th Week: 25th/04/22 – 30th/05/22

Date	Activities Carried Out	Relevance of Activity to you as a Student	Participants	Comments and Signature of Field Supervisor/ Responsible Person
25th/04/22	Injected Ivamectin in goats.			
26th/04/22	———			
27th/04/22	Vegetable field setting in Katikara village.	This is to enable in attaining correct measurements of seedbed in terms of spacing of tomatoes we were setting for.	Mr Ahumuza Jasper, Muganyizi Chrispas, Tibagwa Simon, Katusabe Musa.	Actively participated in all Assignments [signature]
29th/04/22	Spraying in goats. Deworming.	This is to control external parasites. Deworming is basically to control different helminthics in goats.	Mr Ivan (Technician), Muganyizi Chrispas, ~~Kuhihira Jessy~~ Kunihira Jessy, Tibagwa Simon.	
30th/04/22	~~Weighing local chicken.~~ - Poultry enumeration. - Weeding in aggat unit to clear out poisonous plants.	- This gave me the knowledge about the different criterias considered while taking data from chicken. - It also for example average weight, comb type, color of shank etc	Mr Ivan (Technician), Dr Igumu, Muganyizi Chrispas, Tibagwa Simon, Atwine Grad.	

Name: Muganyizi Chrispas Reg. No. BU/UP/2019/2142

Class: Certificate in general agriculture Signature: [signature]