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00

Document Title: **STANDARD OPERATING PROCEDURE FOR UNIVERSITY FARMS, BUILDINGS & ENTERPRISES DEVELOPMENT & MANAGEMENT**

CHUKA UNIVERSITY

Standard Operating Procedure

For

University Farms, Buildings & Enterprises Development & Management CU/SOP/UFBE/22

Document Review Sheet

The signatures below certify that this Standard Operating Procedure has been reviewed and accepted, and demonstrate that the signatories are aware of all the requirements contained herein and are committed to ensuring their provision.

Action	Name & Signature	Position	Date
Revised by	Dr. J. N. Rithaa	Director (University Farms, Buildings and Enterprises)	20.8.2019
Reviewed by	Prof. D. K. Isutsa	Deputy Vice-Chancellor (ARSA)/ISO MR	20.9.2019
Approved by	Prof. E. N. Njoka	Vice-Chancellor	20.9.2019



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2.0 GENERAL

2.1 Purpose

The purpose of this procedure is to ensure that University Farms, Buildings and Enterprises operations are managed effectively and efficiently to ensure compliance with the International Standard and the University's planned arrangements, policies, rules and regulations.

2.2 Scope

This procedure applies to and defines all the activities carried out by the Directorate.

2.3 References

- CU Charter, 2013
- CU Statutes, 2014
- CU Strategic Plan, 2017-2022
- CU ISO Quality Management System Manual, 2017
- ISO 9001:2015 International Standard, Clauses 4 to 10

2.4 Abbreviations

AA Administrative Assistant

DVC (AFPD) Deputy Vice-Chancellor (Administration, Finance Planning & Development)

DVC (ARSA) Deputy Vice-Chancellor (Academic, Research & Student Affairs)

HOD Head of Department

UFBE University Farms, Buildings and Enterprises

VC Vice-Chancellor

2.5 Definitions

Director, UFBE: Head of the UFBE Department

Ass. Farm Manager: A person employed to supervise works on the farm

Farm Attendant: A person employed to tend to plants on the farm

Livestock Attendant: A person employed to tend to animals on the farm

Casual worker: A person employed for a short period of time, usually less than three months in a year in one type of job.

Livestock: Refers to domesticated animals such as cattle, poultry, pigs, goats, sheep, Llama etc meant for production of meat, milk, eggs and other by-products.

Crop: A plant grown for its edible products.

Plant: A plant grown for edible or non-edible use.

2.6 Responsibility

The Director UFBE has the primary responsibility of ensuring that this procedure is implemented and remains adequate for its intended purpose and providing information from which the documentation for its processes can be compiled and for initiating action to keep them up to date. All departmental staff members are responsible for implementing and ensuring that these procedures are followed.



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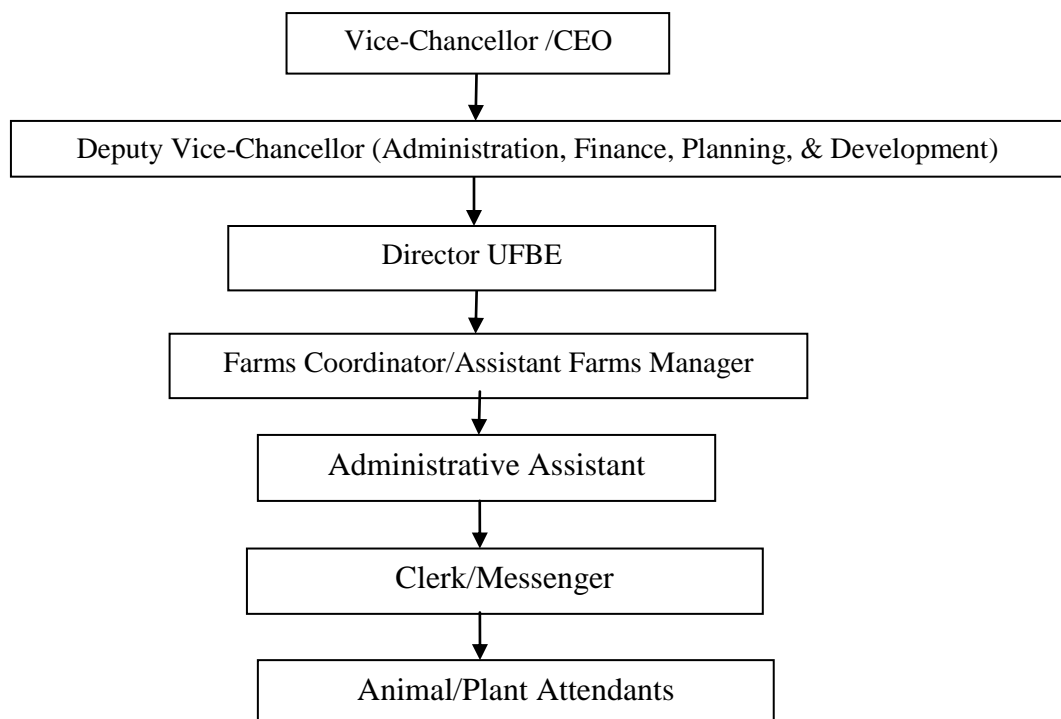
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3.0 ADMINISTRATIVE STRUCTURE

Farm Department is one of the Departments within the University. The current administrative structure for the Department is as shown below:



4.0 PROCESSES

4.1 Overview

- Requisition of farm inputs, tools and implements.
- Evaluation/monitoring of livestock and crop progress in the field.
- Keeping farm records up-to-date.
- Generating income through sale of farm products and University Enterprises.
- Daily cleaning of the floor and feeding troughs for livestock.

4.2 Process for Animal production

4.2.1 Source

CU/SOP/ACAD/16-21, 34-37, 42-44

4.2.2 Required inputs/Resources

- Budgetary Allocation
- Farm structures
- Farm inputs (animals, feeds, supplements, drugs)
- Procurement Plan
- Animal handling equipment



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4.2.3 Expected outputs

- Well trained graduates with practical skills
- Increased revenue through sale of products
- Increased stock

4.2.4. Receivers

CU/SOP/ACAD/16-21, 34-37, 42-44; CU/SOP/VCIM/01, CU/SOP/DVCF/02, CU/SOP/FIND/24,

4.2.5 Process Details

No.	Description	Output	Responsibility
1.	Requisition for purchase of drugs and animal feeds are raised through the Vice Chancellor/Deputy Vice-Chancellor (AFPD) and the procurement department.	Approvals	Clerk/Ass. Farm manager
2.	Cattle are bred using improved bulls semen	Artificial Insemination Records	Ass. Farm Manger
3.	The calves born are reared using mothers milk, calf pellets and roughages	No. of Calves	Animal Attendant
4.	At maturity they are inseminated using improved bulls semen after which they are fed using high phosphorus, dairy meal supplements and high nutritious roughages	Artificial Insemination Records	Ass. Farm Manager/Animal Attendant
5.	After calving the cow is fed with high quality roughages, mineral supplements and dairy meal for high milk production	Milk Records	Ass. Farm Manager/ Animal Attendant

4.3 Process for Plant Production

4.3.1. Source

CU/SOP/ACAD/16-21, 34-37, 42-44

4.3.2. Required input/Resources

- Budgetary allocation
- Procurement plan
- Farm Inputs (Fertilizers, seeds, equipment...)
- Casual labour
- Farm equipment and implements
- Storage facilities

4.3.3. Expected outputs

- Plant produces
- Sales



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4.3.4. Receiver(s)

CU/SOP/ACAD/16-21, 34-37, 42-44; CU/SOP/FIND/24

4.3.5 Process Details

No.	Description	Output	Responsibility
1.	Requisition for farm inputs i.e. planting seeds, fertilizers, insecticides and pesticides is done through the Deputy Vice-Chancellor (AFPD) and the procurement department.	Approval letter	Ass. Farm manager
2.	Land preparation is done either by casual labour or by farm implements (tractor)	Size of land prepared	Ass. Farm manager
3.	Planting using seeds, organic and inorganic fertilizers, farm tools and casual labour	Crop Varieties Planted	Farm Attendant
4.	Weeding done two weeks after germination crops are weeded by casual labour	Size weeded	Ass. Farm manager/Farm Attendant
5.	Pest and disease control done by casual labour using appropriate pesticides	Quantity of drugs used	Ass. Farm manager/Farm Attendant
6.	Top-dressing is done in case the field crop is maize using appropriate fertilizers.	Quantity of fertilizer used	Farm manager/Attendant
7.	Harvesting using casual labour	Quantity harvested	Ass. Farm manager
8.	Threshing and winnowing after harvesting.	Quantity threshed and winnowed	Farm Attendant
9.	The produce is put in bags ready for storage	No. of Bags	Farm manager/Attendant
10.	Sale of the produce	Total Sales	Farm Manager

4.4 Process for Storage of Farm Products

4.4.1 Source

Self-Farm activities


4.4.2 Required inputs/Resources

- Budgetary allocation
- Storage structures
- Farm products and equipment

4.4.3 Expected outputs

- Farm Store inventory



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4.4.4 Receivers

Buyers/customers

4.4.5 Process Details

No.	Description	Output	Responsibility
1.	The mature farm produce is harvested and cured as appropriate (a) Equipment include weighing balances, machetes, hoes, wheelbarrows, Knapsack sprayers, hose pipes, secateurs, sickles (b) The plant produce includes grains, bananas, fruits, leafy vegetables, root vegetables, fruit vegetables etc	Harvested produce	Assistant Farms Manager
2.	The store is cleaned thoroughly and fumigated by casual worker s	Clean store	Farm Attendant
3	The harvested grains and cereals in bags are stacked in the store separately basing on type. Fresh produce is stored briefly and sold immediately before it perishes	Stored dry products/ fresh produce	Farm Attendant

4.5 Process for Farm Research and Teaching

4.5.1 Source

CU/ACAD/SOP/6-10, 34-37, 42-44; staff and students

4.5.2 Required inputs/Resources

- Demonstration/research plots
- Animals and plants
- Animal structures;
- Research plan/practical or demonstration plan

4.5.3 Expected outputs

- Number of animals
- Number of demonstration plots
- Trained students
- Research findings


4.5.4 Receivers

CU/ACAD/SOP/6-10, 34-37, 42-44; staff and students; stakeholders

4.5.5 Process Details

No.	Description	Output	Responsibility
1.	Respective Departments write a request to	Request letter	Coordinator/



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	establish plots on the University farms through the Director to the Vice-Chancellor		Lecturer/ CoD
2.	The request is recommended and forwarded for approval	Forwarded letter	Director
3.	The request is approved and returned to the initiator to proceed and establish the plots	Approved letter	Vice-Chancellor
4.	Crops are planted by students/researcher	Crops/plots layout	Concerned Lecturer
5	Faculty of agriculture and environmental sciences uses plants and crops for practical student teaching and research.	Request letter	Director
6	Faculty of Agriculture and Environmental Studies use the sheep, cattle and Llamas for student research and practical teaching.	Request letter	Director
7	For anatomy and physiology studies the Faculty requests the Management for authority to use the same	Approval letter	Director/Ass. Farm Manger

4.6. Process for Developing and Managing University Farms

4.6.1. Source

CU/SOP/VCIM/01, CU/SOP/DVCF/02, CU/SOP/FIND/24

4.6.2. Required inputs/resources

Budgetary allocation

Procurement plan

Recruitment of personnel

4.6.3. Expected outputs

Acquired University lands/farms

Planting trees and erecting terraces on the farm


4.6.4 Receivers

CU/ACAD/SOP/6-10, 34-37, 42-44; CU/SOP/VCIM/01, CU/SOP/DVCF/02, CU/SOP/FIND/24, staff and students; stakeholders

4.6.5 Process Details

No.	Description	Output	Responsibility
1.	Acquire lands/farms for the University either by purchasing or through donations	Sale/Donation Agreements	Director, UFBE
2.	Process title deeds for the university lands through respective MDIs	Title deeds	Director, UFBE
3.	Protect and secure university lands/farms through fencing and deploying security guards	Approved request Fenced farms/land	Director, UFBE



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4.	Conserve university lands/farms through terracing and planting of trees annually	Conserved farms Number of seedlings in nursery/planted	Director, UFBE
5	Renovate buildings on the lands/farms to ensure that the buildings are in habitable condition	Habitable buildings	Director, UFBE

4.7. Process for Developing and Managing University Enterprises

4.7.1. Source

CU/SOP/VCIM/01, CU/SOP/DVCF/02, CU/SOP/FIND/24,

4.7.2. Required inputs/resources

Budgetary allocation

Procurement plan

Recruited personnel

4.7.3. Expected outputs

Number of university enterprises

Well protected farms through fencing or terracing

Increased university income

4.7.4 Receivers

CU/SOP/VCIM/01, CU/SOP/DVCF/02, CU/SOP/FIND/24

4.5.5 Process Details

No.	Description	Output	Responsibility
1	Monitor the existing University enterprises for enhanced income generation	Sales monitoring reports	Director, UFBE
2	Initiate and develop University enterprises for increased income generation	Request letter Initiated enterprises	Director, UFBE
3	Compile and present to Senate the report on income from farms, buildings and enterprises	Periodical reports	Director, UFBE

5.0 RECORDS/RETAINED DOCUMENTED INFORMATION


- (i) Daily milk production book
- (ii) Daily occurrence book for livestock
- (iii) Daily occurrence book for crops
- (iv) Inventory of farm, buildings and enterprises
- (v) Monthly labour utilisation
- (vi) Ledger book

6.0 KEY PERFORMANCE INDICATORS AND QUALITY OBJECTIVES

6.1. Indicators

- (i) Number of Animals kept




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- (ii) Number of farm products/Enterprises produced
- (iii) Quantity of produce sold
- (iv) Number of students allocated demonstration plots
- (v) Number of staff research projects allocated
- (vi) Number of artificially inseminated Animals
- (vii) Percentage of University farms developed
- (viii) Number of enterprises developed
- (ix) Percentage increase in farms, building and enterprise assets

6.2. Quality Objective

Linked Strategic Objective(s):			
SO 2: Provision of Relevant Quality Higher Education and Training			
1. Quality Objective: Provide demonstration plots and animals for practicals and research to students and staff for 7 Faculties up from 5 Faculties			
Strategy (Actions/Activities required to achieve the objective) Allocate land for demonstration/research plots Procure inputs for production of plants and animals Avail farm/animal attendants to guide the students/staff on proper usage Train the staff on modern technologies for plant and animal management			
Responsibility	Resources Required	Timeline	Measure of Success (KPIs)
Director, UFBE	Procurement plan Hired casuals Finances for the inputs Facilitators Water supply	Annually	Number of plots allocated to staff and students Number of Faculties served Percentage of students trained in farm practicals
Review dates:	Quarterly		
Linked Strategic Objective(s):			
SO 14: Expansion of the University's Financial Resource Base			
2. Quality Objective: Increase University income through the sale of farm products and enterprises by Ksh. 100,000 up from Ksh 500,000 annually			
Strategy (Actions/Activities required to achieve the objective) Timely production of farm products and enterprises Improve storage facilities and market the farm produce and products			
Responsibility	Resources Required	Timeline	Measure of Success (KPIs)
Director, UFBE	Hired casuals Finances for the inputs Marketing channels	Annually	Quantity of farm products Number of enterprises set up Amount of Money generated
Review dates:	Quarterly		
Linked Strategic Objective(s):			
SO 2: Provision of Relevant Quality Higher Education and Training			
3. Quality Objective: To increase University farms developed by acquiring land, fencing and planting 200 tree seedlings annually			




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Strategy (Actions/Activities required to achieve the objective)			
Acquire land for the University Fence the University lands Plant tree seedlings on University farms Procure inputs for fencing and tree planting			
Responsibility	Resources Required	Timeline	Measure of Success (KPIs)
Director, UFBE	Procurement plan Tree seedlings Hired casuals Finances for the inputs	Annually	Number of plots/Land acquired Number of tree seedlings planted Distance fenced
Review dates:	Quarterly		
Linked Strategic Objective(s):			
SO 14: Expansion of the University's Financial Resource Base			
4. Quality Objective: To increase University enterprises development by coming up with a new enterprise annually			
Strategy (Actions/Activities required to achieve the objective)			
Initiate and develop university enterprises Procure inputs for enterprises Liaise with relevant department for enterprises development and operation Seek appropriate statutory approvals for the enterprises			
Responsibility	Resources Required	Timeline	Measure of Success (KPIs)
Director, UFBE	Procurement plan Recruitment of personnel Finances for the inputs Facilitators	Annually	Number of income generating enterprises developed Statutory approvals done for the enterprises
Review dates:	Quarterly		

Risk Identification Key

Likelihood	Consequence	Raw Risk (Likelihood x consequence)
1: Low, very unlikely less than 10% chance of occurring	1: insignificant, consequences are very low, can lead to nil/minor disruptions (1 day), leads to no financial losses	1 - 3: Low, managed within existing controls, monitor annually
2: Medium, possible 20% - 60% chance of occurring	2: Moderate, consequences are moderate, disruption can be up to a week, financial loss can be up to \$10,000	4 - 6: Medium, evaluate efficiency of existing controls or implement mitigation plan, monitor quarterly or 6 monthly
3: High, likely to almost certain 70% - 100% chance of occurring	3: Serious, consequences are adverse, can lead to legal prosecutions, media coverage, investigation by statutory body, complete loss of service delivery or financial loss of > \$ 100,000	7 - 9: High, implement mitigation plan immediately, escalate to senior management, monitor weekly or monthly



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Risk Identification Table

Department: FARM Management. Ref.: CU/SOP/FARM/22			
Project /Process Name: Animal Production			
SN	Risk	Source (How can the risk occur)	Impact (What is the impact of the risk occurring)
1	Accidental Attack by aggressive animals	During handling especially restraining an animal	Disability conditions
2	Disease infection	During handling or disposal in case of a deceased animal	Contracting diseases
3	Chemical inhalation	During spraying of animals	Contracting diseases
4	Loss of products	Stealing of products	Loss of revenue
5	Loss of cash	Handling of cash by many people	Loss of revenue
7	Stock out	Delay in procurement procedures	Lack of animal feeds leading to declined yields and extreme animal starvation
Project /Process Name: Plant Production			
1	Disease infection	Allergic conditions	Contracting diseases
2	Chemical inhalation	During spraying of animals	Contracting diseases
3	Loss of products	Stealing of products	Loss of revenue
4	Loss of cash	Handling of cash by employees	Loss of revenue
6	Stock out	Delay in procurement procedures	low of yields
Project /Process Name: Storing of farm products			
1	Loss of Products	Stealing of products	Loss of revenue
2	Reduced quality/ Rotting	Poor storage conditions	Low value leading to loss of revenue
Project /Process Name: Farm Teaching			
1	Loss of tools and equipment	Misplacement and stealing	Reduction in productivity
2	Accidental Attack by aggressive animals	During handling especially restraining an animal	Disability conditions
3	Disease infection	During handling or disposal in case of a deceased animal	Contracting diseases
4	Chemical inhalation	During spraying of plants/animals	Contracting diseases
5	Loss of products	Disappearance of products during harvesting or milking.	Loss of revenue
Project /Process Name: Farms development			
1	Loss of inputs	Disappearance of tools and implements during fencing or tree planting	Low performance and idleness by workers
2	Cutting of trees	High demand for wood and timber	Environmental degradation
Project /Process Name: Enterprises development			
1	Loss of cash	Handling of cash by employees	Loss of revenue
2	Low quality products	Production of substandard products	Loss of revenue



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RISK REGISTER

Note for monitoring, the following is the response: What = risk described. Why = prevent/correct consequence. How = mitigations/controls. Who = risk owner

Risk name/ description	Risk Consequences	Likelihood (L)	Consequence (C)	Potent Risk (L x C)	Mitigations/controls (Opportunity source)	Risk Owner	Monitoring	Actual Risk				
								LA	CA	RI= LA*CA	RR% =RI/PR	EC%
Accidental attack by aggressive animals	Deformation leading to disability Cost implication	3	3	9	Training on animal handling Use handling structures	Animal Attendants Director	Continuous	3	1	3	33%	67%
Destruction of neighboring farms	Litigation Bad reputation	2	3	6	Use of animal handling structures Properly secure and monitor the animals	Farm Attendants Farm Manager	Continuous	2	0	0	0%	100%
Chemical and pathogen inhalation	Health damage Contracting diseases Low productivity	2	3	6	Adherence to safe chemical and pathogen handling practices	Plants/Animal Attendants	Continuous	2	1	2	33%	67%
Poor cash flow	Loss of revenue	2	3	6	Deployment of a cashier to the farms	Sales clerks Farms Accountant	Continuous	2	0	0	0%	100%
Theft of farm produce	Loss of revenue	2	3	6	Check up at gates Surveillance	Farms Manager Security Officer	Continuous	2	2	4	67%	33%
Inputs stock-out	Failed production plan Loss of income	2	2	4	Efficient procurement Provide ample lead time for requisitions	Procurement Department Director	Quarterly	2	1	2	50%	50%
Reduced quality/rotting	Loss of products Loss of income Waste of resources	2	3	6	Adhere to ideal storage conditions for each product/produce	Director/ Ass. Farm Manger	Continuous	2	2	4	67%	33%
Collapsing of buildings	Loss of life	3	3	9	Compliance with all regulatory provisions	VC/Architect Director	Continuous	3	0	0	0%	100%
Low quality enterprise products	Bad reputation Loss of income	2	2	4	Ensure products are of good quality	Director	Continuous	2	0	0	0%	100%

Key: LA= Likelihood achieved. CA=Consequence achieved. RI=Risk incidences encountered. RR% = Residual Risk. EC%= Effectiveness of control
Potent Risk (PR): Refers to potential raw risk that is anticipated. EC% = 100% - RR%



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OPPORTUNITY TABLE


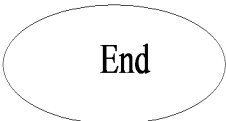
SN	Opportunity	Action Plan	Timelines	Effectiveness/ Status
1	-Many potential income generating opportunities and enterprises in the region -Increasing University staff population with commercializable ideas and projects	Improve structures for exploiting the potential income generating units such as farm produce	Annually	100%
2	Demand for improved stock breeds (plant and animal)	Improve the animal breeds for increased milk production by use of Artificial insemination	Continuous	70%
3	Community goodwill, support and increasing population	Enhance Artificial Insemination and sale of products. Acquire more parcels of land for expansion of teaching and research activities. Enhance entrepreneurship and produce for sale to the populous community	Annually	70%
4	High demand for teaching, demonstration and research plots from increasing student and staff population	Provide teaching and demonstration plots for students and staff	Continuous	100%
5	Available land for enterprises development	Enhance University enterprises through irrigation and processing	Continuous	70%




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APPENDICES: PROCESS MAPS


(i) Animal Production

RESPONSIBILITY	ACTION
DIRECTOR UFBE	 ↓ Requisitioning of inputs
DEPUTY VICE-CHANCELLOR (AFPD)/VC	Approval of request NO/YES ↕
PROCUREMENT DEPT	Purchasing of inputs and supplies
LIVESTOCK ATTENDANT	Cattle inherited from Ndagani Polytechnic are bred using improved semen
ANIMAL ATTENDANT	The calves born are reared using mother's milk, calf pellets and roughages
ASS. FARM MANAGER	<ul style="list-style-type: none"> • Insemination using improved bulls' semen after which they are fed using high phosphorus, dairy meal supplements and high nutritious roughages • After calving the cow is fed with high quality roughages, mineral supplements and dairy meal for high milk production • Llamas are fed using horse pellet, wheat brain and high nutrition roughages and they inter-breed.
FARM DIRECTOR ACCOUNTANT	<ul style="list-style-type: none"> • Products/animals are sold <div style="text-align: center;">  </div>

(ii) Plant Production

RESPONSIBILITY	ACTION
DIRECTOR UFBE/ ADMINISTRATIVE ASSISTANT	 ↓ Requisition for farm inputs i.e. seeds, fertilizers, pesticides, implements, bags, casual labour
DEPUTY VICE-CHANCELLOR (AFPD)/VC	Approval. NO/YES ↕




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PROCUREMENT DEPT	Procurement sends quotations to suppliers
DIRECTOR UFBE /INTERNAL AUDITOR	Opens the quotations Prepares quotation summary with supplier rating. Requisition for approved items made
ADMINISTRATIVE ASSISTANT FARM MANAGER	<ul style="list-style-type: none"> • Land preparation is done either by casual labour or by tractor • Planting uses seeds, fertilizers, farm tools. • Weeding is done 2 weeks after germination by casual labour. • Pests control is done by casual labourers using recommended pesticides. • Second weeding is done as the first, 3rd weeding is optional • Top-dressing is done using appropriate fertilizers. • Harvesting is done using casual labour. • Threshing and winnowing follows harvesting. • Dusting is done by application of appropriate pesticides • The produce is put in bags and stored.
DIRECTOR UFBE ACCOUNTANT	List of casuals performing each activity is prepared and submitted to the senior accountant for payment
DIRECTOR UFBE ACCOUNTANT	<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">End</div> Produce is stored and sold



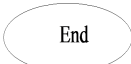
(iii) Farm Teaching and Research

RESPONSIBILITY	ACTION
COURSE LECTURER/ RESEARCHER	<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">Start</div> Request for teaching or research facility/plot
VC/DIRECTOR UFBE	Approval. NO/YES
COURSE LECTURER/ RESEARCHER	The research or practical materials are planted and monitored by the researcher or students
COURSE LECTURER/ RESEARCHER	The research or practical duration is completed and the materials are removed and the plot cleared and prepare for another user
RESEARCHER	Causal labourers are engaged to assist the researcher or students as appropriate. Research casuals are paid by the researcher
ACCOUNTANT DIRECTOR UFBE	<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">End</div> Preparation of list of expenses for payment



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(iv) Sale of Farm Produce

RESPONSIBILITY	ACTION
ASS. FARM MANAGER	<div style="text-align: center;">  <p>↓</p> </div> Requesting to sell farm produce
DVC (AFPD)/VC	Approval. NO/YES 
DIRECTOR ufbe	Sale
SENIOR ACCOUNTANT	Depositing of cash collected <div style="text-align: center;">  </div>