



REPUBLIC OF KENYA

COMPETENCY BASED CURRICULUM

FOR

PASSION FRUIT PRODUCTION AND PROCESSING

LEVEL 3



**TVET CDACC
P.O. BOX 15745-00100
NAIROBI**

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FOREWORD

The provision of quality education and training is fundamental to the Government's overall strategy for social economic development. Quality education and training will contribute to achievement of Kenya's development blueprint and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution and this resulted in the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No. 4 of 2016). A key feature of this policy is the radical change in the design and delivery of TVET training. This policy document requires that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this curriculum has been developed.

It is my conviction that this curriculum will play a great role towards development of competent human resource for Agriculture Sector's growth and development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING
MINISTRY OF EDUCATION**

PREFACE

Kenya Vision 2030 aims to transform the country into a newly industrializing, “middle-income country providing a high-quality life to all its citizens by the year 2030”. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency Based Education and Training (CBET).

The Technical and Vocational Education and Training Act No. 29 of 2013 and Sessional Paper No. 4 of 2016 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) in conjunction with Horticulture Sector Skills Advisory Committee (SSAC) have developed this curriculum.

This curriculum has been developed following the CBET framework policy; the CBETA Standards and guidelines provided by the TVET Authority and the Kenya National Qualification framework designed by the Kenya National Qualification Authority.

This curriculum is designed and organized with an outline of learning outcomes; suggested delivery methods, training/learning resources and methods of assessing the trainee’s achievement. The curriculum is competency-based and allows multiple entry and exit to the course.

I am grateful to the Council Members, Council Secretariat, Horticulture SSAC, expert workers and all those who participated in the development of this curriculum.

Prof. CHARLES M. M. ONDIEKI, PhD, FIET (K), Con. EngTech.

**CHAIRMAN,
TVET CDACC**

ACKNOWLEDGMENT

This curriculum has been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the curriculum, significant involvement and support was received from various organizations.

I recognize with appreciation the role of the Horticulture Sector Skills Advisory Committee (SSAC) in ensuring that competencies required by the industry are addressed in the curriculum. I also thank all stakeholders in the Apiculture sector for their valuable input and all those who participated in the process of developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that workers in Agriculture Sector acquire competencies that will enable them to perform their work more efficiently and effectively.

Dr. LAWRENCE GUANTAI M'ITONGA, PhD
COUNCIL SECRETARY/CEO,
TVET CDACC

Table of Contents

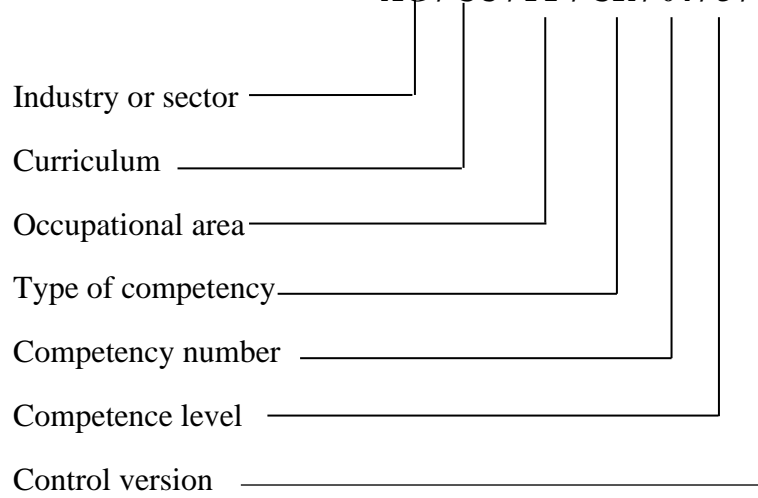
FOREWORD	ii
PREFACE	iii
ACKNOWLEDGMENT.....	iv
ABBREVIATIONS AND ACRONYMS	vi
KEY TO UNIT CODE.....	vii
COURSE OVERVIEW	viii
BASIC UNITS OF LEARNING	1
COMMUNICATION SKILLS	2
NUMERACY SKILLS	4
DIGITAL LITERACY.....	6
ENTREPRENEURIAL SKILLS	8
EMPLOYABILITY SKILLS.....	11
ENVIRONMENTAL LITERACY	14
OCCUPATIONAL SAFETY AND HEALTH PRACTICES	16
CORE UNITS OF LEARNING.....	18
PASSION FRUIT SEEDLING PRODUCTION	19
PASSION FRUIT ORCHARD OPERATION	23
PASSION FRUIT PROCESSING	28
PASSION FRUIT PRODUCTS MARKETING	32

ABBREVIATIONS AND ACRONYMS

2D	:	Two Dimensional
AG	:	Agriculture
AIDS	:	Acquired Immuno-deficiency Syndrome
BC	:	Basic Competency
CBET	:	Competency Based Education and Training
CR	:	Core Competency
CU	:	Curriculum
FYM	:	Farm Yard Manure
HIV	:	Human Immuno-deficiency Virus
ICT	:	Information Communication Technology
IT	:	Information Technology
KCSE	:	Kenya Certificate of Primary Education
KNQA	:	Kenya National Qualifications Authority
LCD	:	Liquid Crystalline Display
OSHS	:	Occupational Safety and Health Standards
PF	:	Passion Fruit
PFPM	:	Passion Fruit Production Manual
PPE	:	Personal Protective Equipment
SSAC	:	Sector Skills Advisory Committee
SWOT	:	Strengths, Weaknesses, Opportunities and Threats
TVET	:	Technical and Vocational Education and Training
TVET CDACC	:	TVET Curriculum Development, Assessment and Certification Council

KEY TO UNIT CODE

AG / CU / PF / CR / 04 / 3 / A



COURSE OVERVIEW

Passion Fruit Production and Processing Operations Level 3 qualification consists of units of learning that an individual must achieve to produce passion fruit seedlings, operate a passion fruit orchard, process passion fruits and to market passion fruit products.

The units of learning leading to Passion Fruit Production and Processing Operations Level 3 qualification include the following:

Basic Units of Learning

Unit Code	Unit Title	Duration in Hours	Credit factor
AG/CU/PF/BC/01/3/A	Communication skills	15	1.5
AG/CU/PF/BC/03/3/A	Numeracy skills	15	1.5
AG/CU/PF/BC/04/3/A	Digital literacy	20	2.0
AG/CU/PF/BC/05/3/A	Entrepreneurial skills	40	4.0
AG/CU/PF/BC/06/3/A	Employability skills	20	2.0
AG/CU/PF/BC/07/3/A	Environmental literacy	15	1.5
	Occupational safety and health practices	15	1.5
Total		140	14

Core Units of Learning

Unit of Learning Code	Unit of Learning Title	Duration in Hours	Credit factor
AG/CU/PF/CR/01/3/A	Passion fruit seedling production	30	3
AG/CU/PF/CR/02/3/A	Passion fruit orchard operation	45	4.5
AG/CU/PF/CR/03/3/A	Passion fruit processing	30	3
AG/CU/PF/CR/04/3/A	Passion fruit product marketing	20	2
	Industrial attachment	300	30
Total		425	42.5
Grand Total		565	56.5

The total duration of the course for an average trainee is 565 hours including 300 hours of Industrial Attachment.

Entry Requirements

An individual entering this course should have any of the following minimum requirements:

- a) Kenya Certificate of Primary Education (KCPE)
- or**
- b) Equivalent qualifications as determined by Kenya National Qualifications Authority (KNQA)

Industrial attachment

An individual enrolled in this course will undergo an industrial attachment for a period of 300 hours in a passion fruit nursery and farm as well as in a processing facility.

Trainer qualification

A trainer for this course should have a higher qualification than the level of this course.

Assessment

The course will be assessed at two levels:

- a) **Internal assessment:** conducted continuously by the trainer (internal assessor) who is monitored by an accredited internal verifier.
- b) **External assessment:** conducted by an accredited external assessor who is monitored by an accredited external verifier.

The assessors and verifiers are accredited by TVET CDACC which also coordinates external assessment.

Certification

An individual will be awarded a Certificate of Competency on demonstration of competence in a unit of competency. To be awarded Certificate in Bee products processing Certificate Level 4, an individual must demonstrate competence in all the units of competency.

These certificates will be awarded by TVET CDACC in conjunction with the training provider.

BASIC UNITS OF LEARNING

COMMUNICATION SKILLS

UNIT CODE: AG/CU/PF/BC/01/3/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Communication Skills

Duration of Unit: 15 hours

Unit Description

This unit specifies the competencies required to demonstrate communication skills. It involves, obtaining and conveying workplace information, speaking English at a basic operational level, participating in workplace meetings and discussions and completing relevant work-related documents.

Summary of Learning Outcomes

1. Obtain and convey workplace information
2. Speak English at a basic operational level
3. Participate in workplace meetings and discussions
4. Complete relevant work-related documents

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Obtain and convey workplace information	<ul style="list-style-type: none">• Communication process• Modes of communication• Medium of communication• Effective communication• Barriers to communication• Flow of communication• Sources of information• Types of questions• Organizational policies• Workplace etiquette• Ethical work practices in handling communication	<ul style="list-style-type: none">• Written tests• Oral questioning• Observation
2. Speak English at a basic operational level	<ul style="list-style-type: none">• English grammar<ul style="list-style-type: none">○ Nouns, verbs, adjectives, adverbs, pronouns prepositions• English speaking	<ul style="list-style-type: none">• Written tests• Oral questioning• Role play

	<ul style="list-style-type: none"> ○ Pronunciation ○ Simple conversations ● Taking verbal instructions ● Reading and writing in English ● Forms of expression in English 	
3. Participate in workplace meetings and discussions	<ul style="list-style-type: none"> ● Nature of workplace meetings ● Meeting protocols ● Workplace interactions 	<ul style="list-style-type: none"> ● Oral questioning ● Observation ● Written tests
4. Complete relevant work-related documents	<ul style="list-style-type: none"> ● Types and purposes of workplace documents and forms ● Methods used in filling forms and documents ● Recording workplace data ● Process of distributing workplace forms and documents ● Report writing ● Types of workplace reports 	<ul style="list-style-type: none"> ● Written tests ● Oral questioning ● Observation

Suggested Delivery Methods

- Discussion
- Role play
- Brainstorming
- Viewing of related videos

Recommended Resources

- Desktop computers/laptops
- Projectors
- Report writing templates
- Pens
- Note books

NUMERACY SKILLS

UNIT CODE: AG/CU/PF/BC/02/3/A

Relationship to Occupational Standards:

This unit addresses the Unit of Competency: Demonstrate Numeracy Skills

Duration of Unit: 15 hours

Unit Description

This unit covers the competencies required to identify and undertake simple numerical processes. The person who is competent in this unit shall be able to use / work with whole numbers and money up to one hundred thousand; Locate, compare and use highly familiar measurement; Use highly familiar maps and diagrams; Identify and use some common 2D shapes; and locate specific Information in highly familiar tables, graphs and charts for work.

Summary of Learning Outcomes

1. Use whole numbers for work
2. Locate, compare and use highly familiar measurement for work
3. Use highly familiar maps and diagrams for work
4. Identify and use some common 2D shapes for work
5. Locate specific Information in highly familiar tables, graphs and charts for work

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Use whole numbers for work	<ul style="list-style-type: none">• Whole numbers• Use of Zeros• Use of halves• Sizes• Grouping of numbers• Addition and subtraction of whole numbers• Numerical information symbols	<ul style="list-style-type: none">• Oral questioning• Written tests• Practical test• Observation
2. Locate, compare and use highly familiar measurement for work	<ul style="list-style-type: none">• Measurements• Units of measurements and their use• Digital time am and pm• Calendars	<ul style="list-style-type: none">• Oral questioning• Written tests• Practical test• Observation

3. Use highly familiar maps and diagrams for work	<ul style="list-style-type: none"> • Use of Maps and <ul style="list-style-type: none"> ○ Diagrams simple ○ Symbols and pictorial • Giving simple oral directions to locate objects 	<ul style="list-style-type: none"> • Oral questioning • Written tests • Practical test • Observation
4. Identify and use some common 2D shapes for work	<ul style="list-style-type: none"> • Two dimensional shapes • Describe common objects in terms of size and shape • Compare objects • Group common objects based on shape, size, color and features 	<ul style="list-style-type: none"> • Oral questioning • Written tests • Practical test • Observation
5. Locate specific Information in highly familiar tables, graphs and charts for work	<ul style="list-style-type: none"> • Simple tables • Features of simple graphs and charts • Numerical information in tables, graphs & charts 	<ul style="list-style-type: none"> • Oral questioning • Written tests • Practical test • Observation

Suggested Delivery Methods

- Instructor led facilitation of theory.
- Practical demonstration of tasks by trainer
- Practice by trainees/ role play
- Discussion
- Observations and comments and corrections by trainers

Recommended Resources

- Common 2D shapes objects
- Calculator
- Basic measuring instruments
- Mathematical tables

DIGITAL LITERACY

UNIT CODE: AG/CU/PF/BC/03/3/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Digital Literacy

Duration of Unit: 20 hours

Unit Description

This unit covers the competencies required to effectively demonstrate digital literacy in a working environment. It entails identifying and using digital devices such as smartphones, tablets, laptops and desktop computers for purposes of communication and performing work related tasks at the work place.

Summary of Learning Outcomes

1. Identify computer hardware and software
2. Apply security measures to data, hardware and software
3. Apply computer software in solving tasks
4. Apply internet and email in communication at workplace

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify computer hardware and software	<ul style="list-style-type: none">• Definition of a computer• Functions of a computer• Components of a computer• Classification of computers• Computer software	<ul style="list-style-type: none">• Written tests• Oral questioning• Observation
2. Apply security measures to data, hardware and software	<ul style="list-style-type: none">• Data security and control• Security threats and control measures• Types of computer crimes• Detection and protection against computer crimes	<ul style="list-style-type: none">• Written tests• Oral presentation• Observation
3. Apply computer software in solving tasks	<ul style="list-style-type: none">• Operating systems• Word processing• Spread sheets• Data base	<ul style="list-style-type: none">• Oral questioning• Observation• Practical
4. Apply internet and email in	<ul style="list-style-type: none">• Computer networks• Uses of internet	<ul style="list-style-type: none">• Oral questioning• Observation

communication at workplace	<ul style="list-style-type: none">• Electronic mail (e-mail) concept	<ul style="list-style-type: none">• Oral presentation• Written report
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Suggested Delivery Methods

- Instructor led facilitation of theory
- Demonstration by trainer
- Practical work by trainee
- Viewing of related videos
- Group discussions

Recommended Resources

Tools and equipment

- Desk top computers
- Laptop computers
- Other digital devices
- Printers
- Storage devices
- Internet access
- Computer software

ENTREPRENEURIAL SKILLS

UNIT CODE: AG/CU/PF/BC/04/3/A

Relationship to occupational standards

This unit addresses the Unit of Competency: Demonstrate Entrepreneurial Skills

Duration of unit: 40 hours

Unit description

This unit describes the competencies required to demonstrate entrepreneurial competencies. It includes, acquiring and developing entrepreneurial culture, identifying entrepreneurial opportunities, starting a small business, running and growing a small business.

Summary of Learning Outcomes

1. Acquire and develop entrepreneurial culture
2. Identify entrepreneurial opportunities
3. Start a small business
4. Run a small business
5. Grow a small business

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Acquire and develop entrepreneurial culture	<ul style="list-style-type: none">• Definition of entrepreneur• Importance of entrepreneurship• Common terminologies in entrepreneurship• Entrepreneurship and employment creation• Formal and informal employment• Habits that promote entrepreneurial development• Cultural factors that inhibit entrepreneurship	<ul style="list-style-type: none">• Observation• Individual / group assignments• Written tests• Oral questioning

2. Identify entrepreneurial opportunities	<ul style="list-style-type: none"> • Types, characteristics, qualities & role of entrepreneurs • SWOT analysis • Generating Business ideas • Business opportunities • Evaluation of business opportunities 	<ul style="list-style-type: none"> • Observation • Individual/group assignments • Written tests • Oral questioning
3. Prepare a business plan	<ul style="list-style-type: none"> • Types of business plan • Components of a business plan • Importance of a business plan • Forms of business ownership • Importance of location of a small business • Resources required to start a small business 	<ul style="list-style-type: none"> • Observation • Individual/group assignments • Written tests • Oral questioning
4. Start a small business	<ul style="list-style-type: none"> • Factors to consider when starting a small business • Legal requirement for starting a small business • Procedure of starting a small business • The dos and don'ts of starting a small business • Challenges faced when starting a small business and mitigating factors • Launch of a small business 	<ul style="list-style-type: none"> • Oral questioning • Observation • Individual/group assignments • Written tests
5. Run a small business	<ul style="list-style-type: none"> • Organizational structure of a small business • Managing small business finances • Book keeping • Business support services • Marketing for small businesses • Basic IT application in small business 	<ul style="list-style-type: none"> • Observation • Individual/group assignments • Written tests
6. Grow a small business	<ul style="list-style-type: none"> • Methods of growing/expanding a small business • Resources for growing small business • Small business growth plan 	<ul style="list-style-type: none"> • Observation • Individual/group assignments • Written tests

	<ul style="list-style-type: none">• ICT and business growth	
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Suggested Delivery Methods

- Instructor led facilitation of theory
- Demonstration by trainer
- Practice by trainee
- Role play
- Case study

Recommended Resources

- Case studies for small businesses
- Business plan template
- Laptop/ desktop computer
- Internet
- Telephone
- Writing materials

EMPLOYABILITY SKILLS

UNIT CODE: AG/CU/PF/BC/05/3/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Employability Skills

Duration of Unit: 20 hours

Unit Description

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating critical safe work habits, demonstrating workplace learning and workplace ethics.

Summary of Learning Outcomes

1. Conduct self-management
2. Demonstrate critical safe work habits
3. Demonstrate workplace learning
4. Demonstrate workplace ethics

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct self-management	<ul style="list-style-type: none">• Self-awareness• Formulating personal vision, mission and goals• Strategies for overcoming life challenges• Emotional intelligence• Assertiveness• Developing and maintaining high self-esteem• Developing and maintaining positive self-image• Accountability and responsibility• Good work habits• Self-awareness• Financial literacy• Healthy lifestyle practices	<ul style="list-style-type: none">• Observation• Written tests• Oral interview• Third party report

2. Demonstrate critical safe work habits	<ul style="list-style-type: none"> • Stress and stress management • Punctuality and time consciousness • Interpersonal communication • Sharing information • Resources utilization • HIV and AIDS • Drug and substance abuse • Handling emerging issues 	<ul style="list-style-type: none"> • Observation • Written tests • Oral interview • Third party report
3. Demonstrate workplace learning	<ul style="list-style-type: none"> • Personal training needs identification and assessment • Cultural aspects of work • Application of learning • Safe use of technology • Identifying opportunities • Workplace innovation • Handling emerging issues • Future trends and concerns in learning 	<ul style="list-style-type: none"> • Observation • Oral interview • Written tests • Third party report
4. Demonstrate workplace ethics	<ul style="list-style-type: none"> • Meaning of ethics • Ethical perspectives • Values and beliefs • Organization code of ethics • Common ethical dilemmas • Organization culture • Corruption, bribery and conflict of interest • Privacy and data protection • Harassment and mutual respect • Financial responsibility/accountability • Etiquette • Emerging issues in ethics 	<ul style="list-style-type: none"> • Observation • Oral interview • Written tests • Third party report

Suggested Methods of Delivery

- Instructor lead facilitation of theory
- Demonstrations
- Simulation/Role play
- Group Discussion
- Presentations
- Projects

- Case studies
- Assignments

Recommended Resources

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors

ENVIRONMENTAL LITERACY

UNIT CODE: AG/CU/PF/BC/06/3/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Environmental Literacy

Duration of Unit: 15 hours

Unit Description

This unit describes the competencies required by a worker to control environmental hazard, control environmental pollution and comply with workplace sustainable resource use.

Summary of Learning Outcomes

1. Control environmental hazard
2. Control environmental Pollution
3. Demonstrate sustainable resource use

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Control environmental hazard	<ul style="list-style-type: none">• Environmental Management and Coordination Act 1999• Solid Waste Act• Storage of environmentally hazardous materials• Disposal of hazardous wastes• Types and uses of PPEs in line with environmental regulations• Occupational Safety and Health Act 2007	<ul style="list-style-type: none">• Written tests• Oral questions• Observation of work procedures
2. Environmental Pollution Control	<ul style="list-style-type: none">• Types of pollution• Environmental pollution control and management• Procedures for waste management	<ul style="list-style-type: none">• Written tests• Oral questions• Observation of work procedures
3. Demonstrate sustainable resource use	<ul style="list-style-type: none">• Types of resources• Sustainable resource use and management• Principles of 3Rs (Reduce, Reuse, Recycle)	<ul style="list-style-type: none">• Written tests• Oral questions• Observation of work procedures

Suggested Delivery Methods

- Instructor led facilitation of theory
- Discussion
- Demonstration by trainer
- Practice by trainee
- Observations and comments and corrections by trainers

Recommended Resources

- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Solid Waste Act
- Environmental Management and Coordination Act 1999
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE)

OCCUPATIONAL SAFETY AND HEALTH PRACTICES

UNIT CODE: AG/CU/PF/BC/07/3/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Demonstrate Occupational Safety and Health Practices

Duration of Unit: 15 hours

Unit Description

This unit describes the competencies required by a worker in an industry to practice and promote safety and health at work.

Summary of Learning Outcomes

1. Prepare to apply workplace safety and health practices
2. Compliance with occupational safety and health Act

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Prepare to apply workplace safety and health practices	<ul style="list-style-type: none">• Awareness of legislation that outlines the minimum standards for occupational safety and health requirements/ regulations• Benefits of implementing an occupational safety and health program• Safety requirements/ regulations of own work and of other workers• Workplace standards and procedures for incidents and emergencies• Prevention and Control Measures for accidents, injuries and sickness	<ul style="list-style-type: none">• Oral questions• Written tests• Observation of work procedures

<p>2. Compliance with occupational safety and health Act</p>	<ul style="list-style-type: none"> • Safety instructions and safety signs • Safe handling of tools, equipment and materials • Use of safe guards and safety devices • Reporting of hazards, incidents, injuries and sickness in the workplace 	<ul style="list-style-type: none"> • Written tests • Oral questions • Observation of work procedures
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Suggested Delivery Methods

- Instructor led facilitation of theory
- Practical demonstration of tasks by trainer
- Practice by trainee
- Observations and comments and corrections by trainers

Recommended Resources

- Occupational safety and health standards
- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Client/supplier instructions
- Organizational or external personnel
- Machine/equipment manufacturer's specifications and instructions
- Quality standards

CORE UNITS OF LEARNING

PASSION FRUIT SEEDLING PRODUCTION

Unit Code: AG/CU/PF/CR/01/3/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Produce passion fruit seedlings.

Duration of Unit: 30 hours

Unit Description

This unit specifies the competencies required to produce passion fruit seedlings. It involves establishing a passion fruit nursery, maintaining nursery beds, preparing potted and grafted seedlings, and controlling pests and diseases.

Summary of Learning Outcomes

1. Establish passion fruit nursery
2. Maintain nursery beds
3. Prepare potted seedlings
4. Prepare grafted seedlings
5. Control pests and diseases

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Establish passion fruit nursery	<ul style="list-style-type: none">• Definition of terms:<ul style="list-style-type: none">○ Nursery○ Planting○ Planting materials• Factors to consider when siting a nursery• Nursery certification requirements• Nursery structures<ul style="list-style-type: none">○ Types of nursery structures○ Preparation of nursery structures<ul style="list-style-type: none">▪ Tools equipment, materials and supplies▪ Preparation procedure• Planting media<ul style="list-style-type: none">○ Types	<ul style="list-style-type: none">• Observation• Practical test• Portfolio of evidence• Project• Oral questioning• Written tests• Assignments•

Learning Outcome	Content	Suggested Assessment Methods
	<ul style="list-style-type: none"> ○ Preparation of planting media <ul style="list-style-type: none"> ▪ Mixing ratio ▪ Treatment ● Clean planting materials <ul style="list-style-type: none"> ○ Types of planting material ○ Sources and selection ● Planting procedures 	
2. Maintain nursery beds	<ul style="list-style-type: none"> ● Nursery maintenance practices <ul style="list-style-type: none"> ○ Irrigation and mulching methods and procedures ○ Thinning ○ Weed control ○ Fertilizer application 	<ul style="list-style-type: none"> ● Observation ● Practical test ● Portfolio of evidence ● Project ● Oral questioning ● Written tests ● Assignments ● Third party reports
3. Prepare potted seedlings	<ul style="list-style-type: none"> ● Definition of terms; <ul style="list-style-type: none"> ○ Potting, pricking in and pricking out, ● Tools, equipment, materials, and supplies <ul style="list-style-type: none"> ○ Identification ○ Use and maintenance ● Potting materials <ul style="list-style-type: none"> ○ Potting media ○ Mixing ratios ○ Potting sleeves ● Potting techniques ● Post-pricking care <ul style="list-style-type: none"> ○ Watering ○ Provision of shade ○ Weed control ○ Fertilizer application 	<ul style="list-style-type: none"> ● Observation ● Practical test ● Portfolio of evidence ● Oral questioning ● Written tests ● Assignments ● Third party reports
4. Prepare grafted seedlings	<ul style="list-style-type: none"> ● Definition of terms; scions, rootstock, grafting ● Tools, equipment, materials, and supplies <ul style="list-style-type: none"> ○ Identification ○ Use and maintenance ● Grafting ● Grafting materials stages 	<ul style="list-style-type: none"> ● Observation ● Practical test ● Portfolio of evidence ● Project ● Oral questioning ● Written tests

Learning Outcome	Content	Suggested Assessment Methods
	<ul style="list-style-type: none"> • Methods and procedures • Maintenance of grafted seedlings <ul style="list-style-type: none"> ○ Healing ○ Watering ○ Hardening • Weed control • Routine pruning • Fertilizer application 	
5. Control pests and diseases	<ul style="list-style-type: none"> • Scouting procedure • Signs & symptoms of pests and diseases • Methods of controlling pests and diseases 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Oral questioning • Written tests

Suggested Methods of Instruction

- Demonstration by trainer
- Direct instruction by trainer
- Practice by the trainee
- Role play
- Simulation
- Field trips / site visits
- Group discussions
- Computer aided learning
- Viewing relevant videos
- Guest speakers
- Assignments

Recommended Resources

- Buckets
- Chemicals
- Computer
- Fertilizers
- Forest soil

- Fork
- Grafting tape
- Healing chamber
- Hoe
- Knapsack sprayer
- LCD Projector
- Machete
- Manure
- Nursery structure
- Pesticides
- Polybags and polytubes
- PPEs
- Pruning knife
- Rake
- Sand
- Secateurs
- Seedling tubes
- Shade net
- Slasher
- Sockets
- Soil sterilisation equipment
- Viable passion fruit seeds or cuttings
- Water
- Watering can
- Wheel barrow

PASSION FRUIT ORCHARD OPERATION

Unit Code: AG/CU/PF/CR/02/3/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Operate passion fruit orchard

Duration of Unit: 45 hours

Unit Description

This unit specifies the competencies required to operate a passion fruit orchard. It involves planning the passion fruit orchard, preparing planting area, planting passion fruit seedlings maintaining soil fertility and moisture, and, controlling weeds, pests and diseases. It also involves pruning and training the passion fruit plants, harvesting mature passion fruits and carrying out post-harvesting practices.

Summary of Learning Outcomes

1. Plan passion fruit orchard
2. Prepare passion fruit planting area
3. Plant passion fruit seedlings
4. Maintain soil fertility and moisture
5. Control weeds, pest and diseases
6. Prune and train passion fruit plants
7. Harvest passion fruits.
8. Carry out post-harvest practices

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Plan passion fruit orchard	<ul style="list-style-type: none">• Definition of terms<ul style="list-style-type: none">○ Market○ Demand○ Supply○ Budgets• Factors affecting supply and demand• Factors affecting scale of production• Factors to be considered in orchard site selection• Orchard layout• Budgeting<ul style="list-style-type: none">○ Importance of budgeting○ Types of budgets	<ul style="list-style-type: none">• Observation• Practical test• Portfolio of evidence• Oral questioning• Written tests

Learning Outcome	Content	Suggested Assessment Methods
	<ul style="list-style-type: none"> ○ Budget preparation process ● Record keeping <ul style="list-style-type: none"> ○ Types of records <ul style="list-style-type: none"> ▪ Production ▪ Financial 	
2. Prepare passion fruit planting area	<ul style="list-style-type: none"> ● Land Preparation Procedures <ul style="list-style-type: none"> ○ Land preparation tools equipment and machinery ○ Site clearance ○ Tilling methods ○ Spacing requirements ○ Hole preparation procedures <ul style="list-style-type: none"> ▪ Planting holes ▪ Trellising holes ● Soil sampling procedures and techniques 	<ul style="list-style-type: none"> ● Observation ● Practical test ● Portfolio of evidence ● Third party report ● Oral questioning ● Written tests
3. Plant passion fruit seedlings	<ul style="list-style-type: none"> ● Planting procedures <ul style="list-style-type: none"> ○ Mixing top soil, manure & fertilizer ○ Refilling planting holes with the mixture ○ Planting seedlings ● Setting up of trellising structures 	<ul style="list-style-type: none"> ● Observation ● Practical test ● Portfolio of evidence ● Third party report ● Oral questioning ● Written tests
4. Maintain soil fertility and moisture	<ul style="list-style-type: none"> ● Soil moisture testing techniques ● Fertilizer application <ul style="list-style-type: none"> ○ Types of fertilizers ○ Methods of fertilizer application <ul style="list-style-type: none"> ▪ Top dressing (Granules/FYM) ▪ Fertigation (through irrigation system) ▪ Spraying (foliar) ● Mulching <ul style="list-style-type: none"> ○ Importance ○ Types of mulch ● Irrigation <ul style="list-style-type: none"> ○ Factors to consider in selecting irrigation method ○ Types of Irrigation <ul style="list-style-type: none"> ▪ Drip / spot, ▪ Flooding, 	<ul style="list-style-type: none"> ● Observation ● Practical test ● Portfolio of evidence ● Oral questioning ● Written tests

Learning Outcome	Content	Suggested Assessment Methods
	<ul style="list-style-type: none"> ▪ Sprinkler 	
5. Control weeds, pest and diseases	<ul style="list-style-type: none"> • Pests & disease control <ul style="list-style-type: none"> ○ Types of pests ○ Signs and symptoms ○ Effects of pests ○ Pest control measures ○ Types of diseases ○ Signs and symptoms of diseases ○ Effects of diseases ○ Disease control measures • Weed control <ul style="list-style-type: none"> ○ Types of weeds ○ Effects of weeds ○ Weed control practices 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Third party report • Oral questioning • Written tests
6. Prune and train passion fruit plants	<ul style="list-style-type: none"> • Training of vines <ul style="list-style-type: none"> ○ Importance ○ Training procedure • Pruning <ul style="list-style-type: none"> ○ Importance ○ Tools and equipment ○ Pruning procedures ○ Pruning techniques 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Term project • Third party report • Oral questioning • Written tests
7. Harvest passion fruits.	<ul style="list-style-type: none"> • Harvesting procedures • Harvesting practices <ul style="list-style-type: none"> ○ Harvesting tools and equipment ○ Techniques 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Term project • Third party report • Oral questioning • Written tests
8. Carry out post harvest practices	<ul style="list-style-type: none"> • Sorting • Cleaning • Grading • Packing • Storage 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Term project • Third party report • Oral questioning • Written tests

Suggested Methods of Instruction

- Demonstration
- Direct instruction
- Practical
- Role play
- Simulation
- Field trips / site visits
- Group discussions
- Computer aided learning
- Viewing relevant videos
- Guest speakers

Recommended Resources

- Agro chemicals
- Computers
- Delivery note book
- Digging hoe
- Disinfectants
- Fencing wire
- Fertilizers
- Fork
- Irrigation facilities
- Knapsack sprayer
- Labels
- LCD projector
- Machete
- Manure/ Compost/ Fertilizer
- Measuring tape
- Mulch
- Nails
- Passion fruit seedlings
- Pliers
- Ploughs

- Posts
- PPE
- Pruning knife
- Rake
- Record keeping templates
- Secateurs
- Slasher
- Spade
- Stationery
- Strings or wires
- Tree pegs
- Water
- Watering can
- Wheel barrow

PASSION FRUIT PROCESSING

Unit Code: AG/CU/PF/CR/03/3/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Process passion fruits.

Duration of Unit: 30 hours

Unit Description

This unit specifies the competencies required to process passion fruits. It involves preparing the passion fruit processing unit, sourcing passion fruits, preparing the fruits for processing, preparing passion fruit products, packaging the products, maintaining the quality of the passion fruit products, and, management of passion fruit processing wastes

Summary of Learning Outcomes

1. Prepare passion fruit processing unit
2. Source passion fruits
3. Prepare passion fruits for processing
4. Prepare passion fruit products
5. Package passion fruit products
6. Maintain passion fruit product quality
7. Manage processing wastes

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Prepare passion fruit processing unit	<ul style="list-style-type: none">• Processing unit<ul style="list-style-type: none">○ Requirements○ Setting up<ul style="list-style-type: none">▪ Cleaning▪ Arrangement• Processing tools and equipment<ul style="list-style-type: none">○ Types○ Assembling	<ul style="list-style-type: none">• Observation• Practical test• Portfolio of evidence• Oral questioning• Third party report• Written tests• Assignments
2. Source passion fruits	<ul style="list-style-type: none">• Qualities of passion fruit for processing• Bulking strategies for passion fruits<ul style="list-style-type: none">○ Supplier contracting○ Cooperatives○ Farmer groups• Receiving procedures	<ul style="list-style-type: none">• Observation• Practical test• Portfolio of evidence• Oral questioning• Third party report• Written tests

		<ul style="list-style-type: none"> • Assignments
3. Prepare passion fruits for processing	<ul style="list-style-type: none"> • Definition of terms: <ul style="list-style-type: none"> ○ OSHS ○ PPEs • Personnel safety requirement in passion processing facility • Grading and sorting <ul style="list-style-type: none"> ○ Sorting procedures ○ Cleaning options ○ Grading parameters ○ Brix testing 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Term project • Oral questioning • Third party report • Written tests • Assignments
4. Prepare passion fruit products	<ul style="list-style-type: none"> • Processing of passion fruit products <ul style="list-style-type: none"> ○ Types of passion fruit products ○ Processing tools, equipment and materials ○ Processing procedures ○ Mixing ratios of passion fruit products ○ Preservation • Processing wastes management 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Oral questioning • Third party report • Written tests • Assignments
5. Package passion fruit products	<ul style="list-style-type: none"> • Labelling and branding <ul style="list-style-type: none"> ○ Required information on labels ○ Traceability measures • Packaging <ul style="list-style-type: none"> ○ Types and quality requirements of packaging material ○ Importance of packaging ○ Packaging procedures • Storage options, facilities and techniques for various passion fruit products 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Term project • Oral questioning • Third party report • Written tests • Assignments
6. Maintain passion fruit product quality	<ul style="list-style-type: none"> • Cleaning, handling and safety standards for processing tools and equipment • Personal and general hygiene requirements • Sampling techniques for products and raw materials • Quality test results interpretation • Batching and coding <ul style="list-style-type: none"> ○ Importance 	<ul style="list-style-type: none"> • Observation • Practical test • Portfolio of evidence • Oral questioning • Written tests • Assignments

	<ul style="list-style-type: none"> ○ Techniques ● Regulations and standards of fresh fruit and products packaging in Kenya <ul style="list-style-type: none"> ○ Hygiene standards ○ Safety standards ○ Standardization procedures 	
7. Manage processing wastes	<ul style="list-style-type: none"> ● Definition of terms ● Waste management regulations ● Types of wastes <ul style="list-style-type: none"> ○ Peels/crust ○ Seed ○ Water ○ Waste pulp / juice ○ Packaging materials ● Handling of wastes <ul style="list-style-type: none"> ○ Collection ○ Separation ○ Reducing ○ Recycling ○ Reusing ○ Safe disposal 	<ul style="list-style-type: none"> ● Observation ● Practical test ● Portfolio of evidence ● Oral questioning ● Written tests ● Assignments

Suggested Methods of Instruction

- Demonstration by trainer
- Direct instruction by trainer
- Practice by the trainee
- Role play
- Simulation
- Field trips / site visits
- Group discussions
- Computer aided learning
- Viewing relevant videos
- Guest speakers
- assignments

Recommended Resources

- Boilers
- Bottles
- Branding labels and certificates
- Buckets
- Clean Water
- Computer
- Cooker or stove
- Crates, cartons and pallets
- Jugs/jars
- Juice blending and packing machines
- Ladder
- LCD projector
- Pack-house
- Pasteurizer
- PPEs
- Processing unit
- Pulping machines
- Sieves
- Sorting or grading tables
- Weighing scale

MARKETING PASSION FRUIT PRODUCTS AND SERVICES

Unit Code: AG/CU/PF/CR/04/3/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Market passion fruit products and services.

Duration of Unit: 20 hours

Unit Description

This unit specifies the competencies required to market passion fruit products and services. It involves selecting passion fruit products and services to market, selecting marketing options, selling the products as well as keeping marketing records.

Summary of Learning Outcomes

1. Select passion fruit products and services
2. Select marketing options
3. Sell passion fruit products and services
4. Keep marketing records

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Select passion fruit products and services	<ul style="list-style-type: none">• Definitions of terms:<ul style="list-style-type: none">○ Market○ Demand○ Supply○ Market equilibrium○ Market scan• Market scanning<ul style="list-style-type: none">○ Tools<ul style="list-style-type: none">▪ Questionnaire▪ Interviews▪ Observation checklist○ Market gap identification	<ul style="list-style-type: none">• Observation• Portfolio of evidence• Oral questioning• Written tests
2. Select marketing options	<ul style="list-style-type: none">• Business registration and legal requirements / licenses• Product and service promotion techniques	<ul style="list-style-type: none">• Observation• Practical test• Portfolio of evidence

Learning Outcome	Content	Suggested Assessment Methods
	<ul style="list-style-type: none"> ○ Types of markets ○ Methods of advertisement ○ Promotion techniques ● Business plan development <ul style="list-style-type: none"> ○ Objective formulation ○ Business activities and budgets 	<ul style="list-style-type: none"> ● Oral questioning ● Written tests
3. Sell passion fruit products and services	<ul style="list-style-type: none"> ● Marketing channels ● Means of transport for distribution ● Distribution channels ● Modes of payments ● Sale agreements 	<ul style="list-style-type: none"> ● Practical test ● Oral questioning ● Written tests
4. Keep marketing records	<ul style="list-style-type: none"> ● Types of records <ul style="list-style-type: none"> ○ Production / operational ○ Financial ● Methods of record storage <ul style="list-style-type: none"> ○ Physical ○ Digital ● Data analysis <ul style="list-style-type: none"> ○ Measures of central tendency ○ Percentages and proportions ● Report writing 	<ul style="list-style-type: none"> ● Observation ● Practical test ● Oral questioning ● Written tests

Suggested Methods of Instruction

- Demonstration
- Direct instruction
- Practical
- Role play
- Simulation
- Field trips / site visits
- Group discussions
- Computer aided learning
- Viewing relevant videos
- Guest speakers

Recommended Resources

- Calculator
- Computer
- Financial document templates
- LCD projector
- Phone
- Printer
- Record keeping tools
- Stationery
- Business plan template