



**THE REPUBLIC OF UGANDA**  
**Ministry of Education and Sports**

**Business, Technical, Vocational Education and Training [BTJET] Subsector Reform**



## **Assessment and Training Package**

**For**

**TREE NURSERY  
OPERATOR**

**Qualification Level: 1**

**Occupational Cluster: Agriculture, Natural  
Resources and Environment**

**January 2022**

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**Developed by:**

**Qualifications Standards Department  
Directorate of Industrial Training**

**Funded by:**

**Government of Uganda**

## **DIRECTORATE OF INDUSTRIAL TRAINING**

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Under BTVET Act, 2008 the functions of the Directorate of Industrial Training are:

- (a) To identify the needs of the labour market for occupational competencies that fall under the UVQF;
- (b) To regulate apprenticeship schemes;
- (c) To foster and promote entrepreneurial values and skills, as an integral part of the UVQF;
- (d) To secure adequate and sustainable financing for the efficient operations of the Directorate;
- (e) To accredit training institutions or companies as assessment centers;
- (f) To determine fees payable under the Act;
- (g) To develop, apply, expand and improve the purposeful application of Uganda Vocational Qualifications defined in the UVQF;
- (h) To assess and award Uganda Vocational Qualifications;
- (i) To promote on-the-job training in industry for apprenticeship, traineeship and indenture training and for other training such as further skills training and upgrading; and
- (j) To prescribe the procedure for the making of training schemes

Further to the above provisions, there is an established Uganda Vocational Qualifications Framework (UVQF), under part V of the BTVET Act, 2008. It is stated that:

The purpose of the UVQF is to define:

- (a) Occupational standards in the world of work;
- (b) Assessment standards;
- (c) Vocational qualifications of learners who meet the set standards of different studies;
- (d) Provide guidelines for modular training.

The UVQF shall follow principles of Competence Based Education and Training (CBET) which include:

- (a) Flexible training or learning modules;
- (b) Positive assessment and Certification;
- (c) Assessment of Prior Learning;
- (d) Recognition of formal and non-formal training;
- (e) Self-paced or individual learning; and
- (f) Work place learning

For award and recognition of certificates, the BTVET Act, 2008 provides that:

- (1) The Directorate and other examination boards established under the Act shall award certificates and diplomas for Business, Technical or Vocational education and training under the UVQF;
- (2) The Certificates and Diplomas to be awarded shall be in the form prescribed by the Minister on the recommendation of the Industrial Training Council;
- (3) The Certificates and Diplomas awarded under the Act shall be recognized in the Uganda education system and by the labour market.

Under the TVET Implementation Standards 2020, the proposed new mandate of the Directorate of Industrial Training shall be restricted to promoting the highest standards in the quality and efficiency of industrial training in the country and ensuring an adequate supply of properly trained manpower at all levels in the industry and the world of work.

The functions shall include:

- a) Regulating Industrial training and trainers,
- b) Developing industrial training curricula,
- c) Harmonizing curricula and certificates of competence,
- d) Assessing industrial training,
- e) Development of occupational standards and Assessment and Training Packages (ATPs) for Trade Testing for the industry and world of work and
- f) Awarding certificates in that respect.

At operational level in the Directorate, the Qualification Standards Department performs development tasks related to concepts, procedures and instruments for establishment of the UVQF in close collaboration with both public and private stakeholders in vocational training.

In particular, the Department organizes and coordinates the development of Assessment and Training Packages for use in competence-based vocational training as well as standards-based assessment and certification.

The Directorate has therefore produced this Assessment and Training Package for use in implementing Competence-Based Education and Training mechanisms.

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## Word from Permanent Secretary

The Kajubi report (1989) and the Uganda Government White Paper on Education Review (1992) emphasized that the Uganda Secondary School Education should be vocationalised.

The World Bank Report on education in Uganda 2007 observed that although Uganda was experiencing steady economic growth on one hand, the secondary education curriculum was inadequately addressing the social and economic needs of the country on the other. The report further noted that it is not the very top academic cadres that contribute most to the growth of the GDP but rather the competent middle level technicians that are flexible and technologically literate that the economy needs in the labour force at all levels.

Correspondingly, the NDP III 2020/21- 2024/5 highlights (i) low labour productivity ;( ii) high youth unemployment (38%) and (iii) low transition rates from training to employment (35%) as some of the key challenges to Human Capital Development in Uganda.

In order to overcome these challenges, NDP III 2020/21- 2024/5, under objective 2 peaks the need to train the students for the urgently needed skills and mainstream a dual education and training system. This paved way for the development of the lower secondary school vocational curriculum which supports both academic and vocational training.

Therefore is in line with the Uganda Vision 2040 under section 261 emphasizes that students will be accorded opportunities to excel in the skills areas they are placed into. These will range from sports and cut to technical and vocational training. Hitherto, section 262 clearly states that the entire education system will be changed to emphasize practical skills, attitude and moral values.

Government of Uganda through the Ministry of Education and Sports rolled out the lower secondary school education curriculum in secondary schools countrywide during the first term of the academic year 2020. The overall goal of this curriculum is to produce graduates with employable skills and who are competitive in the labor market. It should be emphasized that vocational training will produce graduates who are employable. In the lower secondary school vocational curriculum emphasis will be on equipping learners with employable skills and competencies. This will enable learner's perform the requisite duties of the specified occupations. This is the reason why the lower secondary school vocational curriculum was tailored to the assessment requirements of the World of work

Reading from the curriculum Framework page 12 it is stated that the learners will be assessed by DIT. Upon assessment and certification, the graduates will be employable and competitive in the labor market it's against this background that DIT, within its mandate vested in the BTVET Act 2008 comes on board to take the lead in the development of the requisite Assessment and Training Packages for the various occupations that will be assessed under the Lower Secondary Curriculum.

The ATP can be used by any training provider and/or those who wish to present themselves for Occupational Assessment and Certification.

Herewith, the Directorate of Industrial Training presents the reviewed “Assessment & Training Package (ATP)” for training, assessment and certification of a **TREE NURSERY OPERATOR-QUALIFICATION LEVEL 1**.

Finally, I thank all individuals and organizations who have contributed and/or participated in the development of this noble document.

**Ketty Lamaro**  
**Permanent Secretary**

## Executive Summary

This Assessment and Training Package is a Competence-Based Education and Training (CBET) tool and consists of three major parts:

- 0.1 **PART I: The “Occupational Profile” (OP) of a TREE NURSERY OPERATOR** This Occupational Profile, which was developed by Tree Nursery Operators practicing in work life, mirrors the duties and tasks, vegetable seed processors are expected to perform in the world of work.
- 0.2 **PART II: “Training Modules”** in the form of guidelines to train Tree Nursery Operators both on the job as well as in training centers (or combinations of both venues of learning). The Training Modules herein have been developed basing on the Occupational Profile and hence are directly relevant for employment.
- 0.3 **PART III: “Assessment Instruments”** in the form of performance (Practical) and written (theory) test items that can and should be used to assess whether a person complies with the requirements of employment as a Tree Nursery Operators. These assessment instruments were reviewed jointly by job practitioners (**TREE NURSERY OPERATOR**) and instructors based on the occupational profile and training modules<sup>1</sup>.
- 0.4 While the Occupational Profile (OP) contained in PART I of this document provides the information **WHAT a person is expected to do** competently in work life, the test items -including performance criteria- of PART III qualify the **HOW and/or HOW WELL a person must do the job.**
- 0.5 The modular format of the curriculum (PART II) allows learners to acquire job specific skills and knowledge (i.e., competencies) module by module. A single module can be accomplished within a relatively short duration of time allowing learners to move directly into an entry level job, go for further modules or advance to higher levels of training. Modular courses allow more learners to access the training system because training centers as well as companies can accommodate more students in a given period of time.
- 0.6 In addition to improved access, equity and relevance of BTVET, the UVQF will also enable people who are convinced to have acquired competencies laid down in this ATP through prior training and on-the-job experience to access assessment and certification directly; be it on the basis of a single module, a group of modules or all modules pertaining to the occupation at once. This achievement will facilitate Recognition of Prior Learning (RPL).

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<sup>1</sup>In this document, only sample test items for assessing (practical) performance and occupational knowledge (theory) are included. A larger selection of test items can be obtained from an electronic Test Item Bank at Directorate of Industrial Training

0.7 The parts of this Assessment and Training Package were sequentially developed as follows:

- i Part 1: Occupational Profile (Level 1): ***January 2022***
- ii Part 2: Training Modules (Level 1): ***January 2022***
- iii Part 3: Assessment instruments (initial bank): ***January 2022***

This ATP (or parts of it) may be periodically revised to match the dynamic trends in the occupation and hence issued in different versions.

**Patrick Byakatonda**  
**Ag Director**



## Acknowledgement

The Qualifications Standards Department of DIT wishes to sincerely acknowledge the valuable contributions to the review of this Assessment and Training Package by the following persons, Institutions and organizations:

- Members of the DIT Industrial Training Council;
- The Director and staff of DIT,
- Ministry of Education and Sports;
- The practitioners from the world of work;
- Teachers of Agriculture in various Secondary schools;
- Agriculture Curriculum Specialists from NCDC;
- Examination Specialist from UNEB;
- The facilitators involved in guiding the practitioners in their activities;
- The Government of Uganda for financing the review of this ATP;

## Abbreviations and Acronyms

A&C	Assessment & Certification
ATP	Assessment & Training Packages
BTVET	Business, Technical and Vocational Education and Training
CBET	Competency Based Education and Training
DIT	Directorate of Industrial Training
ITC	Industrial Training Council
GoU	Government of Uganda
LWA	Learning-working Assignment
MC	Modular Curriculum
MoES	Ministry of Education and Sports
OP	Occupational Profile
PEX	Practical Exercise
PTI	Performance (Practical) Test Item
QS	Qualification Standards
RPL	Recognition of Prior Learning
TIB	Test Item Bank
TVET	Technical, Vocational, Education and Training
UVQ	Uganda Vocational Qualification
UVQF	Uganda Vocational Qualifications Framework
WTI	Written (Theory) Test Item

## Key Definitions

<b>Assessment</b>	Assessment is the means by which evidence is gathered and judged to decide if an individual has met the stipulated assessment standards or not. Testing is a form of formal assessment.
<b>Certification</b>	Certification is a formal procedure to issue a certificate (qualification) to an individual that has demonstrated during formal assessment that he/she is competent to perform the tasks specified in the occupational profile.
<b>Competence</b>	Integration of skills, knowledge, attitudes, attributes and expertise in doing /performing tasks in the world of work to a set standard.
<b>Competency</b>	(Occupational) competency is understood as the ability to perform tasks common to an occupation to a set standard.
<b>CBET</b>	Competence-based education and training means that programmes: <ol style="list-style-type: none"><li>1. have content directly related to work</li><li>2. focus is on 'doing something well'</li><li>3. assessment is based upon industry work standards, and</li><li>4. curricula are developed in modular form</li></ol>
<b>Duty</b>	A Duty describes a large area of work in performance terms. A duty serves as a title for a cluster of related Tasks (see also: TASK).
<b>Learning-Working Assignment (LWA)</b>	LWA are simulated or real job situations / assignments that are suitable for learning in a training environment (e.g. "small projects"). In a working environment LWAs are real work situations /assignments.
<b>Modules</b>	Modules are part(s) of a curriculum. Modules can be considered as "self-contained" partial qualifications which are described by learning outcomes or competencies and which can be assessed and certified individually.
<b>Occupational Profile (OP)</b>	An Occupational Profile is an overview of the duties and tasks a job incumbent is expected to perform competently in employment. Occupational Profiles developed by practitioners from the world of work enhance the relevance of training and learning to the requirements of the world of work.

Occupational Profiles define WHAT a person is supposed to do in performance terms. It also contains generic information regarding related knowledge and skills, attitudes/behavior, tools, materials and equipment required to perform as well as trends/ concerns in the occupation.

Occupational profiles are the reference points for developing modular curricular and assessment standards

**Qualification** A qualification is a formal recognition for demonstrating competence, based on formal assessment against set standards. A qualification is provided to the individual in form of a certificate specifying the nature of the competence.

**Task** Job TASKS represent the smallest unit of job activities with a meaningful outcome. Tasks result in a product, service, or decision. They represent an assignable unit of work and have a definite beginning and ending point. Tasks can be observed and measured. (*see also: Duty*)

## 1.0 ATP-PART I

### **Occupational Profile for a TREE NURSERY OPERATOR**

- 1.1 The OCCUPATIONAL PROFILE (OP) for “TREE NURSERY OPERATOR” below defines the **Duties** and **Tasks** a competent TREE NURSERY OPERATOR is expected to perform in the world of work (on the job) in Uganda and the East African region today.
- 1.2 Since it reflects the skill requirements of work life, the Occupational Profile is the reference document for the subsequent development of training modules and assessment instruments (test items) which are directly relevant to employment in Ugandan and the East African businesses and industries.
- 1.3 To ensure that the Occupational Profile is relevant for employment in Uganda and East Africa, the DIT used the method of “occupational/job profiling.

This approach involves the brainstorming of a panel of 8 to 12 competent job practitioners guided by trained and experienced facilitators. During a two-day workshop the panelists define the duties and tasks performed in employment, as well as the prerequisite skills, knowledge, attitudes, tools and equipment, and the future trends and concerns in the occupation/job.

- 1.4 The panelists, facilitators and coordinators who participated in reviewing this Occupational Profile for a TREE NURSERY OPERATOR are listed on the following page.

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<sup>1</sup> The DACUM-method was used. DACUM is an acronym for ‘Develop A Curriculum’

**Job Expert Panel**

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MOEs

**Nnyanzi Flavia**  
NCDC

**Nalubega Agnes**  
UNEB Examiner

**Mwondha Samuel**  
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**Napunyi Patrick**  
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**Funded by**  
The Government of Uganda



**THE REPUBLIC OF UGANDA**  
**Ministry of Education and Sports**

**Business, Technical and Vocational**  
**Education and Training (BTJET) Sub sector**  
**Reform**

**Occupational Profile**  
**For a**  
**“TREE NURSERY**  
**OPERATOR”**

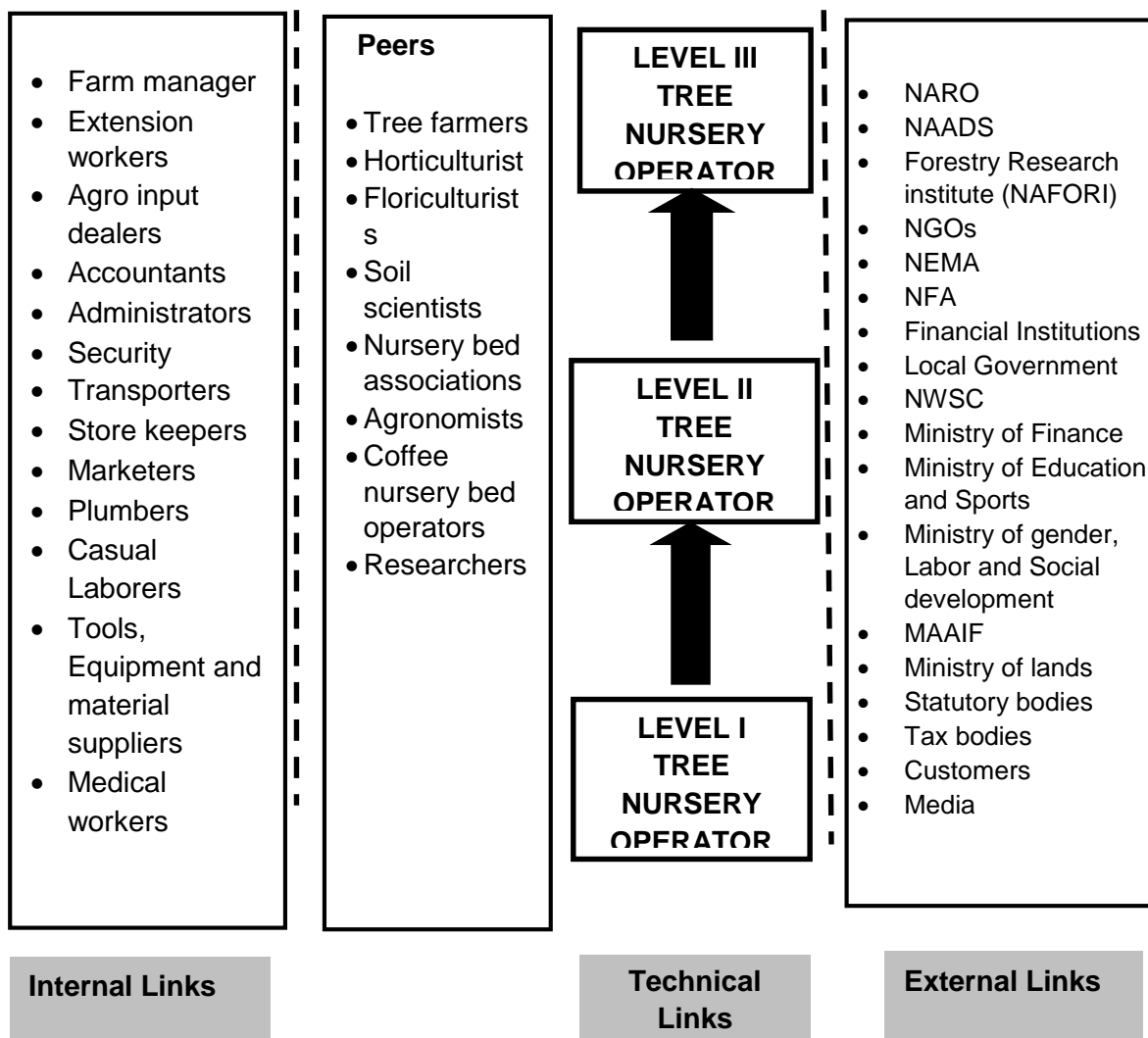
**Developed by: Qualifications Standards**  
**Department of the Directorate**  
**of Industrial Training**

**Date of workshop: 3<sup>rd</sup> –7<sup>th</sup> January, 2022**

## **NOMENCLATURE FOR THE OCCUPATION OF A TREE NURSERY OPERATOR**

**Definition:** Is a person who propagates and manages tree seedlings for commercial purposes.

## **JOB ORGANISATION CHART FOR A TREE NURSERY OPERATOR**



### **Descriptions for the levels in the occupation of “Tree Nursery operator”**

**UVQ Level I Tree nursery operator** is a person who prepares a nursery bed, plants seeds, manages and sells tree seedlings

**UVQ Level II Tree nursery operator** is a person who prepares a nursery bed, sources planting materials, propagates and manages the tree seedlings

**UVQ Level III** is a person who is able to establish, manage a nursery demonstration, applies modified techniques of propagation and has stronger network.

### DUTIES AND TASKS

<b>A. Plan Nursery Activities</b>	<b>A1</b>	Source inputs	<b>A2</b>	Prepare budget	<b>A3</b>	Source funds
	<b>A4</b>	Determine labor source	<b>A5</b>	Determine water source	<b>A6</b>	Prepare farm production schedule
	<b>A7</b>	Prepare site plan				
<b>B. Construct Nursery Infrastructure</b>	<b>B1</b>	Select site	<b>B2</b>	Clear site	<b>B3</b>	Demarcate land
	<b>B4</b>	Construct drainage channels	<b>B5</b>	Construct roads	<b>B6</b>	Construct water reservoir
	<b>B7</b>	Construct nursery shed	<b>B8</b>	Construct store	<b>B9</b>	Construct farm buildings
	<b>B10</b>	Construct demonstration area	<b>B11</b>	Construct dump site	<b>B12</b>	Fence nursery
<b>C. Establish Nursery Bed</b>	<b>C1</b>	Pre-test soil	<b>C2</b>	Sterilize soil	<b>C3</b>	Prepare growth media
	<b>C4</b>	Prepare planting materials	<b>C5</b>	Pot media	<b>C6</b>	Sow propagation materials
	<b>C7</b>	Prepare nursery bed	<b>C8</b>	Conduct germination test		
<b>D. Manage nursery</b>	<b>D1</b>	Inspect nursery	<b>D2</b>	Control pests and diseases	<b>D3</b>	Manage tree seedlings
	<b>D4</b>	Arrange seedlings	<b>D5</b>	Prick out seedlings	<b>D6</b>	Prune seedlings
	<b>D7</b>	Thin seedlings	<b>D8</b>	Water seedlings	<b>D9</b>	Harden off Seedlings
	<b>D10</b>	Sort seedlings	<b>D11</b>	Weed nursery	<b>D12</b>	De-sucker seedlings
	<b>D13</b>	D13. Determine tools, equipment and materials	<b>D14</b>	Perform quality control		



<b>E. Market seedlings</b>	<b>E1</b>	Perform customer care	<b>E2</b>	Advertise tree seedlings	<b>E3</b>	Establish partnerships
	<b>E4</b>	Participate in exhibition	<b>E5</b>	Price tree seedlings	<b>E6</b>	Package tree seedlings
	<b>E7</b>	Grade tree seedlings	<b>E8</b>	Sell seedlings	<b>E9</b>	Transport seedlings
	<b>E10</b>	Prepare portfolio	<b>E11</b>	Negotiate with customers		

<b>F. Maintain tools, equipment and materials</b>	<b>F1</b>	Prepare maintenance schedule	<b>F2</b>	Make inventory of tools	<b>F3</b>	Sanitize tools
	<b>F4</b>	Inspect tool, equipment and materials	<b>F5</b>	Service tools and equipment	<b>F6</b>	Replace tools, equipment and materials
	<b>F7</b>	Repair tools, equipment and materials	<b>F8</b>	Write off tools, equipment and materials	<b>F9</b>	Store tools, equipment and materials

<b>G. Perform administrative tasks</b>	<b>G1</b>	Carry out research	<b>G2</b>	Manage finances	<b>G3</b>	Manage records
	<b>G4</b>	Train staff	<b>G5</b>	Appraise staff	<b>G6</b>	Recruit workers
	<b>G7</b>	Motivate workers	<b>G8</b>	Mobilize resources	<b>G9</b>	Mentor workers
	<b>G10</b>	Remunerate workers	<b>G11</b>	Supervise work	<b>G12</b>	Conduct staff meetings
	<b>G13</b>	Resolve conflict	<b>G14</b>	Manage procurement	<b>G15</b>	Manage risk
	<b>G16</b>	Perform guidance and counseling	<b>G17</b>	Perform personal continuous development	<b>G18</b>	Orient workers
	<b>G19</b>	Coordinate production activities	<b>G20</b>	Bench mark with other practitioners	<b>G21</b>	Communicate with workers
	<b>G22</b>	Assign duties				

<b>H. Perform occupational health and Safety</b>	<b>H1</b> Wear protective gears	<b>H2</b> Store chemicals	<b>H3</b> Manage waste
	<b>H4</b> Display safety signs	<b>H5</b> Insure workers	<b>H6</b> Administer first aid
	<b>H7</b> Maintain personal hygiene and sanitation	<b>H8</b> Sensitize workers on health concerns	<b>H9</b> Perform water source contamination prevention
	<b>H10</b> Perform fire fighting	<b>H11</b> Manage hazards	

## Additional Information

Related knowledge & skills	
<ol style="list-style-type: none"> <li>1. Tools equipment and implement usage, operation and maintenance</li> <li>2. Waste management</li> <li>3. Safety, health and environmental practices and regulations</li> <li>4. Environmental awareness</li> <li>5. Quality control</li> <li>6. Communication skills</li> <li>7. Information and communication technology</li> <li>8. Financial literacy</li> <li>9. Problem solving</li> <li>10. Numeracy and literacy skills</li> <li>11. First aid administration</li> <li>12. Care for seeds and seedlings</li> <li>13. Team work and co-operation</li> <li>14. Resource mobilization and management</li> <li>15. Entrepreneurship skills</li> <li>16. Public relations</li> <li>17. Counselling and guidance</li> <li>18. Nursery tree structures</li> <li>19. Chemical preparation</li> <li>20. Fertilizer application</li> <li>21. Chemical application</li> <li>22. Pesticide application</li> <li>23. Tree species and varieties</li> <li>24. Seed selection and handling</li> <li>25. Growth pattern</li> <li>26. Climate change</li> </ol>	<ol style="list-style-type: none"> <li>27. Time management</li> <li>28. Types of transport</li> <li>29. Staff training and mentoring skills</li> <li>30. Analytical skills</li> <li>31. Record keeping</li> <li>32. Soil conservation</li> <li>33. Business and customer service skills</li> <li>34. Human resource management</li> <li>35. Cleaning skills</li> <li>36. Ergonomics</li> <li>37. Pests, diseases, their signs, symptoms and mitigation strategies</li> <li>38. Planning skills</li> <li>39. Leadership skills</li> <li>40. Pests and diseases and their control</li> <li>41. Innovative skills</li> <li>42. Interpersonal relations</li> <li>43. Marketing</li> <li>44. Soil and water management</li> <li>45. Plant nutrition</li> <li>46. Herbicides</li> <li>47. Light control</li> <li>48. Agronomy</li> <li>49. Time management</li> <li>50. Numeracy &amp; literacy skills</li> <li>51. nursery policies</li> <li>52. Population control</li> </ol>

Tools, materials and Equipment	
<ol style="list-style-type: none"> <li>1. Hand hoe</li> <li>2. Spade</li> <li>3. Panga</li> <li>4. Shovel</li> <li>5. Wheel barrow</li> <li>6. Fork hoe</li> <li>7. Tape Measure</li> <li>8. Slashers</li> <li>9. Pick axe</li> <li>10. Watering can</li> <li>11. Strings</li> <li>12. Water hose</li> <li>13. Dibber</li> <li>14. Fertilizer</li> <li>15. Fencing materials</li> <li>16. Ropes</li> <li>17. Trampoline</li> <li>18. Binding tape</li> <li>19. Filer</li> <li>20. Pegs</li> <li>21. Potting material</li> <li>22. Sieve/ Mesh</li> <li>23. Mulches</li> <li>24. Basins</li> </ol>	<ol style="list-style-type: none"> <li>25. Sprayers</li> <li>26. Jerry cans</li> <li>27. Nails</li> <li>28. Cutters</li> <li>29. Gloves</li> <li>30. Timber</li> <li>31. Polythene</li> <li>32. Water pump</li> <li>33. Gum boots</li> <li>34. Overalls</li> <li>35. Plastic materials</li> <li>36. Fiber glass</li> <li>37. Garden Fork</li> <li>38. Secateurs</li> <li>39. Water</li> <li>40. Pesticides</li> <li>41. Soil</li> <li>42. Hammer</li> <li>43. Sign posts</li> <li>44. Stationery</li> <li>45. First aid kits</li> <li>46. Masks</li> <li>47. Sanitizer</li> <li>48. Steaming drums</li> <li>49. Disinfectant</li> </ol>

### **Future Trends & Concerns**

1. Self-criticism
2. Customer care
3. Bench marking with farmers in other countries
4. Computer literacy
5. Need to have farming products on the international markets
6. Need for advanced technology
7. Skills competition in farming products
8. Public awareness of farming and its benefits
9. Open line of progression/ career development
10. Poor extension services
11. Price fluctuations of products and inputs
12. Fake/ expired agro inputs on the market
13. Limited management skills
14. High prices for improved varieties
15. Inadequate land for expansion of farming
16. Seasonal markets
17. Severe climate changes
18. Government policy
19. Inadequate networking among farmers
20. Introduction of new nursery tree production techniques
21. Regional economic integration
22. Pests and disease outbreak
23. Deforestation
24. Afforestation
25. Heavy competition from other sectors
26. Production of alternative commodities
27. Insurance
28. Population increase
29. Political climate
30. Financial services
31. Natural calamities

<b>Attitudes/ Traits/ Behaviour</b> 1. Self-motivated 2. Trustworthy 3. Honest 4. Tolerant 5. Hardworking 6. Team player 7. Disciplined 8. Good time manager 9. Committed 10. Good listener 11. Flexible 12. Result oriented 13. Curious 14. Competitive 15. Innovative and creative 16. Physically fit 17. Knowledgeable 18. Patient	19. Polite 20. Social 21. Vigilant 22. Calm 23. Respectful 24. Confident 25. Intelligent 26. Logical 27. Trainable 28. Tidy 29. Kind 30. Empathetic 31. Integrity 32. Healthy
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## 2.0 ATP-PART II

### Training Modules for TREE NURSERY OPERATOR

- 2.1 A curriculum is a “guide /plan for teaching and learning” which provides a guide to teachers, instructors and learners. In the envisaged system of competence-based or outcome-oriented education and training (CBET), Curricula are no longer the benchmark against which assessment is conducted. It is rather the Occupational Profile that provides the benchmark for Curriculum development as well as assessment.
- 2.2 This modular format of the curriculum allows learners of the occupation of TREE NURSERY OPERATOR to acquire job specific skills and knowledge (i.e. competencies) module by module. A single module can be accomplished within a relatively short duration of time allowing learners to move directly into an entry level job, do further modules and advance to higher levels of training. Modular courses allow more learners to access the training system because training centres, as well as companies can accommodate more students in a given period of time.
- 2.3 The modules were reviewed jointly by both instructors and job practitioners. They were reviewed using the Occupational Profile as a reference point and taking into account the specifications of training and learning outcomes.
- 2.4 The modules contain “Learning-Working Assignments” (LWAs) and related “Practical Exercises” (PEXs) as key elements.

LWAs are simulated or real job situations/assignments that are suitable for learning in a training environment (e.g. “small projects”). In a working environment, LWAs are real work situations.

PEXs are therefore sub-sets of a LWA.

- 2.5 In principle, and following the philosophy of Competence-Based Education and Training (CBET), the modules can be used as a guide for learning in a training Centre, at the workplace; or a combination of both

## **WHO IS A QUALIFICATION LEVEL 1**

**A TREE NURSERY OPERATOR LEVEL 1** is a person who prepares a nursery bed, plants seeds, manages and sells tree seedlings.

## **OVERVIEW OF MODULES FOR A TREE NURSERY OPERATOR**

Code	Module Title	Average duration	
		Contact hours	Weeks
UE/TNO/M1.1	Establish Tree Nursery	160	4
UE/TNO/M1.2	Manage Tree Nursery	320	8
UE/TNO/M1.3	Market Seedlings	160	4
UE/TNO/M1.4	Maintain Tools, Equipment And Materials	240	6
UE/TNO/M1.5	Perform Administrative Tasks	160	4
Summary		1040 Hours	30 weeks

**Note: Average duration is contact time but NOT calendar duration**

It is assumed that:

- 1 day is equivalent to 8 hours of nominal learning and
- 1 month is equivalent to 160 hours of nominal learning

Information given on the average duration of training should be understood as a guideline. Quick learners may need less time than indicated or vice versa.

At completion of a module, the learner should be able to satisfactorily perform the included Learning Working Assignments, their Practical exercises and attached theoretical instructions, as the minimum exposure.

Prior to summative assessment by recognized Agencies, the users of these Modules Guides are encouraged to carefully consider continuous assessment using samples of (or similar) performance (practical) and written test items available in part 3 of this ATP for a **TREE NURSERY OPERATOR**



<b>Code</b>	<b>UE/TNO/M1.1</b>
<b>Module title</b>	<b>M1.1: Establish Tree Nursery</b>
<b>Related Qualification</b>	Part of Uganda Vocational Qualification (TREE NURSERY OPERATOR UVQ 1)
<b>Qualification Level</b>	1
<b>Module purpose</b>	After completion of this module, a trainee should be able to establish a Tree Nursery on a small scale.
<b>Learning-Working Assignments (LWAs)</b>	<p><b>LWA 1/1: Perform planning</b></p> <p><b>LWA 1/2: Construct nursery bed</b></p> <p><b>LWA 1/3: Prepare media</b></p> <p><b>LWA 1/4: Prepare seeds</b></p> <p><b>LWA 1/5: Sow Seeds</b></p> <p><b>LWA 1/6: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b></p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. The learning exercises may be repeated till the Trainee acquires targeted competence;</li> <li>2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</li> </ol>
<b>Related Practical Exercises (PEXs)</b>	<p><b>LWA 1/1: Perform planning</b></p> <p>PEX 1.1: Prepare budget</p> <p>PEX 1.2: Source inputs</p> <p>PEX 1.3: Select site</p> <p>PEX 1.4: Prepare site</p> <p><b>LWA 1/2: Construct nursery bed</b></p> <p>PEX 2.1: Demarcate bed</p> <p>PEX 2.2: Mark bed</p> <p>PEX 2.3: Construct drainage lines</p> <p>PEX 2.4: Till soil</p> <p>PEX 2.5: Raise bed</p> <p>PEX 2.6: Water bed</p> <p>PEX 2.7: Sink bed</p> <p>PEX 2.8: Level bed</p> <p><b>LWA 1/3: Prepare media</b></p> <p>PEX 3.1: Collect media</p> <p>PEX 3.2: Sieve soil</p> <p>PEX 3.3: Sterilize soil</p> <p>PEX 3.4: Mix soil ratios</p> <p>PEX 3.5: Mix fertilizer</p> <p>PEX 3.6: Pot media</p>

	<b>LWA 1/4: Prepare seeds</b> PEX 4.1: Source seeds PEX 4.2: Sort seeds PEX 4.3: Break dormancy PEX 4.4: Carry out germination test PEX 4.5: Label seeds
	<b>LWA 1/5: Sow Seeds</b> PEX 5.1: Determine sowing method PEX 5.2: Pre-treat seeds PEX 5.3: Plant seeds PEX 5.4: Mulch bed PEX 5.5: Label bed PEX 5.6: Water bed
	<b>LWA 1/6: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b> PEX 7.1: Wear Personal Protective gear PEX 7.2: Administer First aid PEX 7.3: Perform fire fighting PEX 7.4: Manage waste PEX 7.5: Display safety signs PEX 7.6: Disinfect tools, equipment and materials PEX 7.7: Store tools, equipment and materials
<b>Occupational health and safety</b>	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs.
<b>Pre-requisite modules</b>	None
<b>Related knowledge/ theory</b>	<i>For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:</i> <ul style="list-style-type: none"> <li>• Nursery bed orientation</li> <li>• Chemical application</li> <li>• Seed storage</li> <li>• Entrepreneurship</li> <li>• Legal frameworks</li> <li>• Shade control</li> <li>• Numerical</li> <li>• Moisture</li> <li>• Climate</li> <li>• Record keeping</li> <li>• Soil types</li> <li>• Planting methods</li> </ul>

	<ul style="list-style-type: none"> <li>• ICT</li> <li>• Tree species</li> <li>• Administration</li> <li>• First aid</li> <li>• Tool and equipment usage</li> <li>• Seed selection</li> <li>• Pests and disease identification</li> <li>• Fire fighting</li> <li>• Chemical mixing</li> <li>• Germination cycles</li> <li>• Human resource management</li> </ul>
<b>Average duration of learning</b>	<i>160 hours (20days) of nominal learning suggested to include:</i> <ul style="list-style-type: none"> <li>• 5 days of occupational theory and</li> <li>• 15 days of occupational practice</li> </ul>
<b>Suggestions on organization of learning</b>	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
<b>Assessment</b>	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item Bank
<b>Minimum required tools/ equipment/ implements or equivalent</b>	Tape measure, hand hoe, fork hoe, Sterilizing drums, Panga, spade, knives, dibber, Hand trowel, rake, wheel barrow, pick axe
<b>Minimum required materials and consumables or equivalent</b>	Strings, potting bags, binding tape, watering can, gloves, overall, gum boots, head gear, stationery,
<b>Special notes</b>	The theory must be integrated into the practice during training.

<b>Code</b>	<b>UE/TNO/M1.2</b>
<b>Module title</b>	<b>M 1.2: Manage tree nursery</b>
<b>Related Qualification</b>	<u>Part of</u> Uganda Vocational Qualification (TREE NURSERY OPERATOR UVQ 1)
<b>Qualification Level</b>	1
<b>Module purpose</b>	After completion of this module, the trainee should be able to manage and maintain a Tree Nursery bed.
<b>Learning-Working Assignments (LWAs)</b>	<p><b>LWA 2/1: Renovate nursery shed</b></p> <p><b>LWA 2/2: Weed nursery</b></p> <p><b>LWA 2/3: Mix rooting media</b></p> <p><b>LWA 2/4: Control pest and diseases</b></p> <p><b>LWA 2/5: Water nursery</b></p> <p><b>LWA 2/6: Prune seedlings</b></p> <p><b>LWA 2/7: Prick out seedling</b></p> <p><b>LWA 2/8: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b></p> <p><b><u>Note:</u></b></p> <ol style="list-style-type: none"> <li>1. The learning exercises may be repeated till the Trainee acquires targeted competence;</li> <li>2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</li> <li>3. Order of execution may vary.</li> </ol>
<b>Related Practical Exercises (PEXs)</b>	<p><b>LWA 2/1: Renovate nursery structure</b></p> <p>PEX 1.1: Replace damaged shed poles</p> <p>PEX 1.2: Replace thatching material</p> <p>PEX 1.3: Un-block drainage channels</p> <p>PEX 1.4: Replace riveting material</p> <p><b>LWA 2/2: Weed nursery</b></p> <p>PEX 2.1: Scout nursery for weeds</p> <p>PEX 2.2: Slash around nursery</p> <p>PEX 2.3: Up root weed</p> <p>PEX 2.4: Apply mulch</p> <p>PEX 2.5: Plant cover grass</p> <p>PEX 2.9: Clean feeding equipment</p> <p>PEX 2.10: Vaccinate young birds</p> <p>PEX 2.11: Treat sick birds</p> <p><b>LWA 2/3: Mix rooting media</b></p> <p>PEX 3.1: Assemble materials</p> <p>PEX 3.2: Measure ratios</p> <p>PEX 3.3: Sort out impurities</p>

	<b>LWA 2/4: Control pest and diseases</b> PEX 4.1: Scout nursery PEX 4.2: Plant pest repellants PEX 4.3: Apply pesticides PEX 4.4: Handpick pests PEX 4.5: Hanger traps PEX 4.6: Sterilize tools and equipment PEX 4.7: Install foot baths PEX 4.8: Rouge infected plants PEX 4.9: Raise pots
	<b>LWA 2/5: Water nursery</b> PEX 5.1: Collect water PEX 5.2: Monitor nursery PEX 5.3: Measure water quantity PEX 5.4: Irrigate nursery PEX 5.5: Follow watering schedule PEX 5.6: Regulate water flow
	<b>LWA 2/6: Prune seedlings</b> PEX 6.1: Assess seedlings PEX 6.2: Water seedlings PEX 6.3: Perform wrenching PEX 6.4: Perform under cut PEX 6.5: Perform box pruning PEX 6.6: Remove extra stem
	<b>LWA 2/7: Prick out seedling</b> PEX 7.1: Arrange pots PEX 7.2: Water germination bed
	<b>LWA 2/8: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b> PEX 8.1: Wear PPE PEX 8.2: Administer First aid PEX 8.3: Perform fire fighting PEX 8.4: Manage waste PEX 8.5: Display safety signs
<b>Occupational health and safety</b>	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
<b>Pre-requisite modules</b>	None

<b>Related knowledge/ theory</b>	<p><i>For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:</i></p> <ul style="list-style-type: none"> <li>• Weed preventive strategy</li> <li>• Water use rights</li> <li>• Water quality</li> <li>• Weed scouting</li> <li>• Disease scouting</li> <li>• Soil fertility management</li> <li>• Soil conservation</li> <li>• Germination test</li> <li>• Seed quality</li> <li>• Manage waste</li> <li>• Weed control</li> <li>• Water application</li> <li>• Site selection</li> <li>• Pruning seedlings</li> <li>• Nursery construction</li> <li>• Sterilizing media</li> <li>• Pesticide usage</li> <li>• Measurements,</li> <li>• Tool and equipment usage,</li> <li>• Tree varieties.</li> <li>• Growth morphology</li> <li>• Reproduction</li> <li>• Production</li> <li>• Productivity</li> <li>• Pests and disease control</li> </ul>
<b>Average duration of learning</b>	<p><i>320 hours (40days) of nominal learning suggested to include: 12weeks</i></p> <ul style="list-style-type: none"> <li>• 10 days of occupational theory and</li> <li>• 30 days of occupational practice</li> </ul>
<b>Suggestions on organization of learning</b>	<p>The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.</p>
<b>Assessment</b>	<p>Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item bank.</p>

<b>Minimum required tools/ equipment/ implements or equivalent</b>	Wheel barrow, Panga, Slashers, First aid box, Hoes, Rake, Secateurs, watering can, garden fork, water hose, bow saw, pick axe, shovels, spade, tape measure, hammer, furniture, knapsack sprayer, drum, pruning saw
<b>Minimum required materials and consumables or equivalent</b>	Strings, brooms, jerry cans, basins, soap, nails, wire mesh, gum boots, head gear, overall, gloves, eye goggles, respirator, masks, trampoline, sieve, phone, stationery, PVC sheets, utensils, ropes
<b>Special notes</b>	The theory must be integrated into the practice during training.

<b>Code</b>	<b>UE/TNO/M1.3</b>
<b>Module title</b>	<b>M1.3: Market seedlings</b>
<b>Related Qualification</b>	Part of Uganda Vocational Qualification (TREE NURSERY OPERATOR UVQ 1)
<b>Qualification Level</b>	1
<b>Module purpose</b>	After completion of this module, the trainee should be able to market seedlings.
<b>Learning-Working Assignments (LWAs)</b>	<p><b>LWA 3/1: Market research</b></p> <p><b>LWA 3/2: Advertise seedlings</b></p> <p><b>LWA 3/3: Price seedling</b></p> <p><b>LWA 3/4: Sell seedlings</b></p> <p><b>LWA 3/4: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b></p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. The learning exercises may be repeated till the Trainee acquires targeted competence;</li> <li>2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</li> </ol>
<b>Related Practical Exercises (PEXs)</b>	<p><b>LWA 3/1: Market research</b></p> <p>PEX 1.1: Source clients</p> <p>PEX 1.2: Bench mark with other tree practitioners</p> <p>PEX 1.3: Determine demand of seedlings</p> <p>PEX 1.4: Network</p> <p><b>LWA 3/2: Advertise seedlings</b></p> <p>PEX 2.1: Brand seedlings</p> <p>PEX 2.2: Disseminate fliers</p> <p>PEX 2.3: Advertise on media</p> <p>PEX 2.4: Participate in exhibition</p> <p>PEX 2.5: Develop brochures</p> <p>PEX 2.6: Display seedling.</p> <p><b>LWA 3/3: Price seedlings</b></p> <p>PEX 3.1: Grade seedlings</p> <p>PEX 3.2: Package seedlings</p> <p>PEX 3.3: Label seedlings</p> <p>PEX 3.4: Cost seedlings</p> <p><b>LWA 3/4: Sell seedlings</b></p> <p>PEX 4.1: Distribute seedlings</p> <p>PEX 4.2: Display seedling</p> <p>PEX 4.3: Give credit</p> <p>PEX 4.4: Record sales</p> <p>PEX 4.5: Package seedlings</p> <p>PEX 4.6: Perform after sales service</p>



	<b>LWA 3/5: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b> PEX 5.1: Wear PPE PEX 5.2: Administer First aid PEX 5.3: Perform hazard identification and risk control PEX 5.4: Manage waste PEX 5.5: Display safety signs PEX 5.6: Observe safety regulations PEX 5.7: Insure workers PEX 5.8: Routine maintenance of tools, equipment and materials PEX 5.9: Conduct safety inspection PEX 5.10 Observe ergonomic practices PEX 5.11: Sensitize workers on health
<b>Occupational health and safety</b>	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs.
<b>Pre-requisite modules</b>	None
<b>Related knowledge/ theory</b>	<i>For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:</i> <ul style="list-style-type: none"> <li>• Communication skills</li> <li>• Networking</li> <li>• Breakeven point</li> <li>• Storage of tools, equipment and materials</li> <li>• Records</li> <li>• Computer literacy</li> <li>• Statistics</li> <li>• Customer care</li> <li>• Negotiation</li> <li>• Management of occupational hazards</li> <li>• Ergonomics</li> <li>• Climate</li> <li>• Safety</li> <li>• Waste management</li> <li>• Entrepreneurship</li> <li>• Counselling and guidance</li> <li>• Sanitation</li> </ul>
<b>Average duration of learning</b>	160 hours (20 days) of nominal learning suggested to include: <ul style="list-style-type: none"> <li>• 05days of occupational theory</li> <li>• 15days of occupational practice</li> </ul>

<b>Suggestions on organization of learning</b>	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
<b>Assessment</b>	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item Bank
<b>Minimum required tools/ equipment/ implements or equivalent</b>	Wheel barrow, Computers, camera, Secateurs, drums, buckets, PPE
<b>Minimum required materials and consumables or equivalent</b>	Phones, Stationery, airtime, Crates, ropes, polythene bags, internet, tags, water, soap, basin, masks, sanitizer,
<b>Special notes</b>	The theory must be integrated into the practice during training.

<b>Code</b>	<b>UE/TNO/M1.4</b>
<b>Module title</b>	<b>M1.4: Maintain tools, equipment and materials</b>
<b>Related Qualification</b>	<u>Part of</u> Uganda Vocational Qualification (TREE NURSERY OPERATOR UVQ 1)
<b>Qualification Level</b>	1
<b>Module purpose</b>	After completion of this module, the trainee should be able to maintain all the tools and equipment.
<b>Learning-Working Assignments (LWAs)</b>	<p><b>LWA 4/1: Sharpen tools, equipment and materials</b>  <b>LWA 4/2: Clean tools, equipment and materials</b>  <b>LWA 4/3: Sanitize tools equipment and materials</b>  <b>LWA 4/4: Store tools, equipment and materials</b>  <b>LWA 4/5: Repair tools, equipment and materials</b>  <b>LWA 4/6: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b></p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. The learning exercises may be repeated till the Trainee acquires targeted competence;</li> <li>2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</li> </ol>
<b>Related Practical Exercises (PEXs)</b>	<p><b>LWA 4/1: Sharpen tools, equipment and materials</b>                      PEX 1.1: Inspect tools                      PEX 1.2: Sort tools                      PEX 1.3: File blunt edges</p> <p><b>LWA 4/2: Clean tools, equipment and materials</b>                      PEX 2.1: Assemble tools and materials                      PEX 2.2: Wash tools, equipment and materials                      PEX 2.3: Dry tools, equipment and materials                      PEX 2.4: Grease tools, equipment and materials                      PEX 2.5: Store tools, equipment and materials</p> <p><b>LWA 4/3: Sanitize tools equipment and materials</b>                      PEX 3.1: Wear protective gear                      PEX 3.2: Assemble tools, equipment and materials                      PEX 3.3: Prepare disinfectant                      PEX 3.4: Apply disinfectant                      PEX 3.5: Dry tool, equipment and material                      PEX 3.9: Fumigate poultry structures and equipment                      PEX 3.10: Observe hygiene and sanitation</p> <p><b>LWA 4/4: Storage tools, equipment and materials</b>                      PEX 4.1: Assemble tools                      PEX 4.2: Sort tools                      PEX 4.3: Label tools                      PEX 4.4: Keep inventory                      PEX 4.5: Secure store</p>

	<p><b>LWA 4/5: Repair tools, equipment and materials</b>                      PEX 5.1: Assemble tools, equipment and materials                      PEX 5.2: Inspect tools, equipment and materials                      PEX 5.3: Tighten loose tools and equipment                      PEX 5.4: Replace tools, equipment and materials                      PEX 5.5: Lubricate tools                      PEX 5.6: Write off tools, equipment and materials                      PEX 5.7: Manage records</p> <p><b>LWA 4/6: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b>                      PEX 6.1: Wear PPE                      PEX 6.2: Administer First aid                      PEX 6.3: Perform fire fighting                      PEX 6.4: Manage waste                      PEX 6.5: Display safety signs                      PEX 6.6: Manage chemicals                      PEX 6.7: Maintain personal hygiene and sanitization</p>
<b>Occupational health and safety</b>	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs.
<b>Pre-requisite modules</b>	None
<b>Related knowledge/ theory</b>	<p><i>For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:</i></p> <ul style="list-style-type: none"> <li>• Storage</li> <li>• Record keeping</li> <li>• Occupational health and safety</li> <li>• Tools, equipment and material handling</li> <li>• Chemical handling</li> <li>• Occupational risks and hazards</li> <li>• Tools, equipment and material usage</li> </ul>
<b>Average duration of learning</b>	<p>240 hours ( 30days) of nominal learning suggested to include:</p> <ul style="list-style-type: none"> <li>• 10days of occupational theory and</li> <li>• 20days of occupational practice</li> </ul>
<b>Suggestions on organization of learning</b>	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
<b>Assessment</b>	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item Bank

<b>Minimum required tools/ equipment/ implements or equivalent</b>	Basins, brushes, buckets, filers, screw drivers, spanners, oil stones, drums, sprayers, greasing gun, clamp, tool boxes, storage racks, hammer, furniture,
<b>Minimum required materials and consumables or equivalent</b>	Soap, sanitizers, gloves, gum boots, overalls, masks, head gears, stationery, oil, water, brooms
<b>Special notes</b>	The theory must be integrated into practice during training

<b>Code</b>	<b>UE/TNO/M1.5</b>
<b>Module title</b>	<b>M1.5: Perform Administrative Tasks</b>
<b>Related Qualification</b>	<u>Part of</u> Uganda Vocational Qualification (TREE NURSERY OPERATOR UVQ 1)
<b>Qualification Level</b>	1
<b>Module purpose</b>	After completion of this module, the trainee should be able to establish and manage a Tree Nursery Garden.
<b>Learning-Working Assignments (LWAs)</b>	<p><b>LWA 5/1: Develop business plan</b></p> <p><b>LWA 5/2: Register business</b></p> <p><b>LWA 5/3: Manage workers</b></p> <p><b>LWA 5/4: Manage finance</b></p> <p><b>LWA 5/5: Manage Procurement</b></p> <p><b>LWA 5/6: Manage records</b></p> <p><b>LWA 5/7: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b></p> <p><b><u>Note:</u></b></p> <ol style="list-style-type: none"> <li><i>The learning exercises may be repeated till the Trainee acquires targeted competence;</i></li> <li><i>The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</i></li> </ol>
<b>Related Practical Exercises (PEXs)</b>	<p><b>LWA 5/1: Develop business plan</b></p> <p>PEX 1.1: Prepare budget</p> <p>PEX 1.2: Prepare production plan</p> <p>PEX 1.3: Develop market plan</p> <p>PEX 1.4: Prepare Human Resource plan</p> <p>PEX 1.5: Prepare financial plan</p> <p><b>LWA 5/2: Register business</b></p> <p>PEX 2.1: Legalize business</p> <p>PEX 2.2: Acquire business permits</p> <p>PEX 2.3: Acquire business accreditation</p> <p><b>LWA 5/3: Manage workers</b></p> <p>PEX 3.1: Recruit workers</p> <p>PEX 3.2: Perform capacity building</p> <p>PEX 3.3: Supervise workers</p> <p>PEX 3.4: Mentor workers</p> <p>PEX 3.5: Assign work</p> <p>PEX 3.6: Motivate workers</p> <p>PEX 3.7: Orient workers</p> <p>PEX 3.8: Appraise workers</p> <p>PEX 3.9: Pay workers</p>

	<b>LWA 5/4: Manage finance</b> PEX 4.1: Prepare books of accounts PEX 4.2: Audit books of accounts PEX 4.3: Prepare financial reports PEX 4.4: Prepare budgets
	<b>LWA 5/5: Manage records</b> PEX 5.1: Keep financial records PEX 5.2: Keep human resource records PEX 5.3: Keep production records PEX 5.4: Keep climate records PEX 5.5: Keep procurement records PEX 5.6: Manage maintenance records PEX 5.7: Keep inventory PEX 5.8: Keep legal records
	<b>LWA 6/6: Manage procurement</b> PEX 6.1: Develop procurement plan PEX 6.2: Identify suppliers PEX 6.3: Prepare procurement requisitions PEX 6.4: Prepare purchase order PEX 6.5: Verify inputs PEX 6.6: Make payments
	<b>LWA5/7: Perform Occupational Health, Safety &amp; Environmental Protection Practices</b> PEX 7.1: Wear PPE PEX 7.2: Administer First aid PEX 7.3: Perform fire fighting PEX 7.4: Manage waste PEX 7.5: Display safety signs PEX 7.6: Insure farm PEX 7.7: Carryout guidance and counseling PEX 7.8: Observe chemical use guidelines PEX 7.9: Develop and Implement Risk Control Strategies PEX 7.10: Attend trainings on safety and health PEX 7.11: Insure workers PEX 7.12: Maintain OHS Strategy PEX 7.13: Maintain Personal and organizational hygiene
<b>Occupational health and safety</b>	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs.
<b>Pre-requisite modules</b>	None

<b>Related knowledge/ theory</b>	<p><i>For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate:</i></p> <ul style="list-style-type: none"> <li>• Procurement laws</li> <li>• Quality of goods</li> <li>• Costing goods</li> <li>• Credibility of suppliers</li> <li>• Public Procurement Disposal Act (PPDA)</li> <li>• Transport</li> <li>• Inventory management</li> <li>• Budgeting</li> <li>• Labor policies</li> <li>• Company Act</li> <li>• Business management</li> <li>• Research</li> <li>• Human resource management</li> <li>• Political environment</li> <li>• Negotiation</li> <li>• Financial literacy</li> <li>• Computer skills</li> <li>• Counselling and guidance</li> <li>• Record keeping</li> <li>• Marketing strategies</li> <li>• Entrepreneurial skills</li> </ul>
<b>Average duration of learning</b>	<p><i>160hours (20days) of nominal learning suggested to include:</i></p> <ul style="list-style-type: none"> <li>• 10 days of occupational theory and</li> <li>• 10 days of occupational practice</li> </ul>
<b>Suggestions on organization of learning</b>	<p>The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training center or its equivalent provided all equipment and materials required for training are in place.</p>
<b>Assessment</b>	<p>Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item Bank</p>



<b>Minimum required tools/ equipment/ implements or equivalent</b>	Safe box, computers, phone, staples, printers, punching machine, camera,
<b>Minimum required materials and consumables or equivalent</b>	Stationery, internet, procurement guidelines
<b>Special notes</b>	

## 3.0 ATP- PART III

### Assessment Instruments for Tree Nursery Operator

- 3.1 **Assessment** of occupational competence is the procedure by which evidence is gathered and judged to decide if an individual (candidate) has met the stipulated assessment standards.
- 3.2 Assessment of occupational competence should comprise of both practical (performance) testing and written (theory/knowledge) testing.
- 3.3 Based on the Occupational Profile and Training Modules, a combined panel of job practitioners and Instructors developed a substantial number of test items for assessing (practical) performance as well as items for assessing occupational knowledge (theory) all stored in an electronic Test Item Bank (TIB) at the Directorate of Industrial Training.
- 3.4 Performance (Practical) Test Items (PTI) are closely related to typical work situations in Ugandan business enterprises. They comprise of a test assignment for candidates and assessment criteria and/or scoring guides for assessors' use.
- 3.5 Written Test items (WTI) for written testing of occupational theory, (knowledge) are presented in different forms which include:
- Short answer test items.
  - Multiple choice test items
  - Matching test items,
- These WTIs herein focus on functional understanding as well as trouble-shooting typically synonymous with the world of work.
- 3.6 Composition of assessment/test papers will always require good choices of different types of WTI in order to ensure the assessment of relevant occupational knowledge required of candidates to exhibit competence.
- 3.7 The test items contained in the Test Item Bank may be used for continuous/formative assessment during the process of training as well as for summative assessment of candidates who have acquired their competences non-formally or informally.
- 3.8 In this document, samples of test items for assessing both performance (practical) and occupational knowledge (theory) of a **TREE NURSERY OPERATOR** are included.

### 3. Overview of Test Item Samples Included

No	Type of test Items	Numbers included
1	Written (Theory)- Short Answer	3
2.	Written (Theory)- Multiple Choice	1
3.	Written (Theory)- Matching (Cause & Effect)	2
5.	Written (Theory)- Matching Work sequence	2
6.	Performance (Practical)Test Items	1
<b>Total</b>		<b>9</b>

### WRITTEN TEST ITEMS (SAMPLES)

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 1			
Occupational Title:	Tree nursery operator			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause- Effect	Work- sequence
Complexity level:	C1			
Date of OP:	January 2022			
Related module:	M2			
Time allocation:	2 minutes			

Test Item	Which of the following is the purpose of hardening off of tree seedlings?
-----------	---

Answer spaces	(i) .....
---------------	-----------

Expected key (answers)	(i) To encourage faster growth (ii) Increase resistance to pest and disease attack (iii) To acclimatize seedling to field conditions (iv) To reduce seedling growth
------------------------	--

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 2			
Occupational Title:	Tree nursery operator			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause- Effect	Work- sequence
Complexity level:	C1			
Date of OP:				
Related module:	M1			
Time allocation:	3 Minutes			

Test Item	List four materials that can be used in making a growth media
-----------	---

Answer spaces	i. .... ii. .... iii. .... iv. ....
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Expected key (answers)	i. Sandy soil ii. Loam soil iii. Fertile soil iv. Saw dust v. Top soil vi. Compost
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DIT/ QS	Test Item Database Written (Theory) Test Item- no. 3			
Occupational Title:	Tree nursery operator			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause- Effect	Work- sequence
Complexity level:	C1			
Date of OP:	January 2022			
Related module:	M:1			
Time allocation:	3 minutes			

Test Item	List any five tools, equipment or materials used in the establishment of a nursery bed
-----------	--

Answer spaces	i. .... ii. .... iii. .... iv. ....
---------------	--

Expected Key (Answers)	Tools, equipment and materials I. Panga II. Hoe III. Rake Spade IV. Slashers V. Shovel VI. Watering Can VII. Hammer VIII. Measuring Tape IX. Bow Saw X. Gloves
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DIT/ QS	Test Item Database Written (Theory) Test Item- no.5			
Occupational Title:	Tree nursery operator			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause- Effect	Work- sequence
			✓	
Complexity level:	C2			
Date of OP:	January 2022			
Related module:	M1.1			
Time allocation:	5Minutes			

Test Item	Match the following tools to their functions.
-----------	---

Column A (TOOLS)	
1	Spade
2	Tape measure
3	Soil auger
4	Wheel barrow
5	Shovel
6	Sickle

Column B (FUNCTIONS)	
A	Extracting soil samples
B	Loading
C	Cutting grass
D	Carry materials
E	Take measurements
F	Testing soil
G	Carry manure
H	Scooping materials

Key (answer)	6:C, 5:B, 4:D, 3:A, 2:E, 1:H
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DIT/ QS	Test Item Database Written (Theory) Test Item- no.6			
Occupational Title:	Tree nursery operator			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause- Effect	Work-sequence
			√	
Complexity level:	C2			
Date of OP:	January 2022			
Related module:	M1.1			
Time allocation:	8Minutes			

Test Item	Match the following cause to their effects.
-----------	---

Column A (causes)	
1	Too much mulch
2	Too much water
3	Little manure
4	Old seeds
5	Poor drying
6	

Column B (effects)	
A	Rotten seeds
B	Soil hardens up
C	Destroy seedlings
D	Poor growth
E	Poor germination
F	Yellowing of seedlings
G	Dumping off of seedlings

Key (answer)	1:B, 2:G, 3:F, 4:E, 5:A
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DIT/ QS	Test Item Database Written (Theory) Test Item- no. 7			
Occupational Title:	Tree nursery operator			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause- Effect	Work-sequence
Complexity level:	C3			
Date of OP:	January 2022			
Related module:	M1.1			
Time allocation:	10 minutes			

Test Item	Re-arrange the procedures below as observed when establishing a tree nursery bed
-----------	--

Column A (chronology)	Column B (Work steps) in wrong chronology order	
1	A	Mulch nursery
2	B	Apply manure
3	C	Tilt land
4	D	Sow seed
5	E	Prepare seeds
6	F	Water nursery
7	G	Raise nursery bed
8	H	Level nursery
9	I	Arrange tools
10	J	Sterilize soil
11	K	Measure nursery

Key (answer)	1:I, 2:K, 3:C, 4:G,5:H, 6:J, 7:B, 8:E, 9:D ,10:A,11:F
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DIT/ QS	Test Item Database Written (Theory) Test Item- no. 8			
Occupational Title:	Tree nursery operator			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause- Effect	Work- sequence
				✓
Complexity level:	C3			
Date of OP:				
Related module:	M1.2			
Time allocation:	10 minutes			

Test Item	Arrange the following practices as used when controlling pests and diseases
-----------	---

Column A (chronology)	Column B (Work steps) in wrong chronology order	
1 <sup>st</sup>	A	Assemble equipment
2 <sup>nd</sup>	B	Store equipment
3 <sup>rd</sup>	C	Clean equipment
4 <sup>th</sup>	D	Source pesticides
5 <sup>th</sup>	E	Read pesticides label
6 <sup>th</sup>	F	Mix pesticides
7 <sup>th</sup>	G	Identify pests and diseases
8 <sup>th</sup>	H	Inspect nursery
9 <sup>th</sup>	I	Apply pesticides
10 <sup>th</sup>	J	Wear protective gear
11 <sup>th</sup>	K	Remove protective gear

Key (answer)	1:H, 2:G, 3:D, 4:A, 5:J, 6:E, 7:F, 8:I,9:C,10:B, 11:K
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## PERFORMANCE TEST ITEMS (SAMPLES)

DIT/ QS	Test Item Database Performance Test Item- no. 09
<b>Occupational Title:</b>	Tree nursery operator
<b>Competence level:</b>	Level 1
<b>Code no.</b>	
<b>Test Item:</b>	Prepare a raised nursery bed of 5m x 1m and sow seed
<b>Complexity level:</b>	C 2
<b>Date of OP:</b>	January 2022
<b>Related module:</b>	M1.2
<b>Related skills and knowledge:</b>	<ul style="list-style-type: none"> <li>• Correct use of tools, material and equipment</li> <li>• Use of fertilizers</li> <li>• Waste management</li> <li>• Sterilizing</li> <li>• Measurements</li> <li>• Proper use of protective gears</li> <li>• Types of seeds</li> <li>• Climate</li> <li>• Planting depth</li> <li>• knowledge of nutrients deficiency signs</li> <li>• sowing and germination periods</li> <li>• watering regimes</li> <li>• seed preparation</li> <li>• planting nutritive value</li> </ul>
<b>Required tools, Materials and Equipment:</b>	Hand hoe, fork hoe, Garden rake, Rake, Spade, dibber, tape measure, wheelbarrow, poles, thatch materials, soil, Bow saw, hammer, Nails, grass, slasher, sterilizer, match box, watering can, gum boots, head gear, overall, gloves, soap, basin, strings, water, pegs ,stationery, spade, dibber, sanitizer, decomposed manure, shovel, water tank, trampoline
<b>Time allocation:</b>	6 hours
<b>Preferred venue:</b>	Nursery site
<b>Remarks for Candidate</b>	Trainee should observe work procedures Observe time management
<b>Remarks for assessors</b>	<ul style="list-style-type: none"> <li>• Assessors should be flexible towards trainees innovativeness</li> <li>• Observe time management</li> <li>• Should except uncertainties that may occur</li> <li>• Assessor should be at premise 30 minutes before assessment</li> <li>• Should not be compromised and avoid taking bribes</li> <li>• Observe proper handling of tools, equipment and materials</li> </ul>

#	Assessment criteria	Scoring guide	Max Score	
			Process	Result
1	Preparation before task	Wore protective gear <ul style="list-style-type: none"> <li>Gum boots</li> <li>Gloves</li> <li>Head gear</li> <li>Overall</li> <li>Nose mask</li> </ul>		1 1 1 1 1
		Assembled tools, equipment and materials		2
2	Prepare nursery bed	Cleared site	3	
		Cleared site observed		1
		Measured site	3	
		Correct dimensions observed		1
		Tilled land	2	
		Fine tilled land observed		2
		Raised bed	3	
		15cm raised bed observed		1
		Leveled site	2	
		Leveled site observed		2
		Sterilized soil	2	
		Evenly distributed Ash observed		2
		Applied composed manure	2	
		Dark particles observed		2
		Made furrows in the bed	2	
		Parallel furrows observed		2
3	Plant seeds	Opened and removed seeds from packages	1	
		Uniformly distributed seeds along the furrows		3
		Covered seeds with thin layer of soil	2	
		Uniformly leveled nursery bed observed		2
		Mulched bed	2	
		Evenly spread Mulch observed on bed		1
		Watered bed	2	
		Labelled bed	2	
4	Demobilizing of resources	Labelled bed observed		1
		Collected unused materials	1	
		Cleaned tools	1	
		Returned tools, equipment and unused materials to store		1
		Cleared work area observed	1	
		Disposed wastes	2	

		Removed protective gear		1
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	<b>TOTAL</b>		<b>33</b>	<b>28</b>
	<b>Maximum score (Y)</b>	<b>X/Y*100%</b>		

## **4.0 ATP- PART IV**

### **INFORMATION ON DEVELOPMENT PROCESS**

#### **4.1 Occupational Profile Developed (January, 2022)**

The Occupational Profile was exclusively developed by job practitioners who were working in the Tree Nursery Operator occupation, Secondary school teachers who double as examiners of Agriculture with the Uganda National Examination Board (UNEB) and Curriculum Development Specialists working with the National Curriculum Development Centre (NCDC).

The job expert panel, guided by UVQF Facilitators defined duties and tasks performed and provided additional generic information regarding the occupation.

#### **4.2 Training Module Development (January, 2022)**

Based on the Occupational Profile for a Tree Nursery Operator of January 2022, Training Modules were developed by job practitioners, guided by UVQF Facilitators.

#### **4.3 Test Item Development (January, 2022)**

Based on the Occupational Profile for Tree Nursery Operator of January 2022, and Training Modules, Test Items were developed by combined panels of instructors and job practitioners, guided by UVQF Facilitators.

#### **4.4 Methodology**

The rationale for the Assessment and Training Package review was to link Vocational Education and Training to the real world of work by bridging Occupational Standards to Training Standards through industry-led Standards-Based Assessment.

Active participation of both instructors and job practitioners' panels consolidated the review philosophy.

The panelists worked as teams in workshop settings complemented by off-workshop field research and literature review activities including international benchmarking.

#### 4.5 Development Panels

The participating panels of Job Practitioners required at for the Development were constituted by members from the following organizations:

No	Name	Institution/ Organization
1.	Naiga Zulaika	MoES
2.	Nnyanzi Flavia	NCDC
3.	Nalubega Agnes	St, Denis SSS Ggaba
4.	Mwondha Samuel	Busoga College Mwiri
5.	Napunyi Patrick	Masaka SS
6.	Adongo Rita	Barlonyo SS Lira
7.	Wali Christopher	Mukono DLG
8.	Kabasa Nathan	IFDC
9.	Elesu Moses	NARO BUGIZARDI
10.	Muche Douglas	Mayuge DFA
11.	Kissa Ocama David	NARO Entebbe
12.	Kigongo Brian	Cotton on Foundation

#### 4.6 Facilitator team

This Assessment and Training Package was developed by a Facilitator team listed below:

- Team Leader** –Ms. Mukyala Ruth, Ag Deputy Director, DIT
- Facilitators** –Ms. Ninsiima Isabella QS, DIT; Mr. Matende Shamsi AQO, DIT.
- Compiled by** Ms. Namwebya Sarah, Data Entrant DIT and Hanyere Hattie Wright, Data Entrant DIT and edited by Ms. Mukyala Ruth Ag. DD Qualification Standards Dept. DIT
- Coordinated by** – Mr. Byakatonda Patrick, Ag. Director, DIT; and Ms. Mukyala Ruth Ag. DD Qualification Standards Dept. DIT

#### 4.7 Reference time:

The Assessment and Training Package was compiled in January 2022 and may be periodically revised to match the dynamic trends in the occupation and hence issued in different versions.

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