



THE REPUBLIC OF UGANDA
Ministry of Education and Sports

Directorate of Industrial Training



**Assessment and Training
Package**

For a

BEE KEEPER

Qualification Level: 1

Occupational Cluster: Agriculture

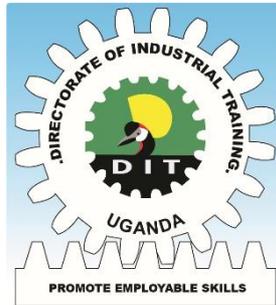
July 2020

Developed by:

**Qualifications Standards Department
Directorate of Industrial Training**

Funded by:

Government of Uganda



Assessment and Training Package

For a

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Qualification Level: 1

Occupational Cluster: Agriculture

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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 centres.
- (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.
- (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;

- (a) Define occupational standards in the world of work.
- (b) Define assessment standards.
- (c) Award 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.
- (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 recognised 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) Harmonising 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.
- (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 organises 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) emphasised 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 market at all levels.

Correspondingly, the NDP III 2020/21- 2024/5 highlights (i) low labour productivity (ii) high youth unemployment (38%) (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 learners 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.

The afore is in line with the Uganda Vision 2040. Under section 261, it emphasises that learners 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 emphasise practical skills, attitude and moral values.

Government of Uganda through the Ministry of Education and Sports rolled out the New Lower Secondary 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 labour market. It should be emphasised that vocational training will produce graduates who are employable. In the New curriculum, emphasis will be on equipping learners with employable skills and competencies. This will enable learners 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 labour 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 (ATPs) for the various occupations that will be assessed under the Lower Secondary Curriculum.

The ATPs 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 Assessment and Training Package for training, assessment and certification of a **BEE KEEPER QUALIFICATION LEVEL 1**.

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



Alex Kakooza
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 BEE KEEPER.** This Occupational Profile which was reviewed by Bee keepers practicing in the world of work mirrors the duties and tasks that Rabbit farmers are expected to perform.
- 0.2 **PART II: Training Modules** in the form of guidelines to train bee keepers both on the job as well as in training centres (or combinations of both venues of learning). The Training Modules herein have been reviewed 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 BEE KEEPER. These assessment instruments were reviewed jointly by job practitioners (Bee keepers) and instructors based on the occupational profile and training modules.
- 0.4 While the Occupational Profile (OP) contained in PART I of this document provides the information on **WHAT a person is expected to do** competently in the world of work, 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 allowing flexibility for 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 centres as well as companies can accommodate more learners 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).

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

- i Part 1: Occupational Profile: **August 2020**
- ii Part 2: Training Modules: **August 2020**
- iii Part 3: Assessment Instruments (initial bank): **August 2020**

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

DIT takes responsibility of any shortcomings that might be identified in this publication and welcomes suggestions for effectively addressing the inadequacies. The suggestion can be communicated to DIT through P.O. Box 20050, Kampala or through email uvaf.dit@gmail.com.



Patrick Byakatonda
Ag Director

Acknowledgement

The Qualifications Standards Department of DIT acknowledges the valuable contributions to the review of this Assessment and Training Package by the following persons, Institutions and organisations:

- 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 and instructors of rabbit farming from various secondary schools.
- Agriculture Curriculum Specialists from NCDC.
- Examination specialists from UNEB.
- The facilitators involved in guiding the development panels in their activities.
- The Government of Uganda for financing the development of this ATP.

Abbreviations and Acronyms

A&C	Assessment and Certification
ATP	Assessment and Training Packages
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

Assessment	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.
Certification	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.
Competence	Integration of skills, knowledge, attitudes, attributes and expertise in doing /performing tasks in the world of work to a set standard.
Competency	(Occupational) competency is understood as the ability to perform tasks common to an occupation to a set standard.
CBET	Competence-Based Education and Training means that programmes: <ol style="list-style-type: none"> 1. have content directly related to work 2. focus is on 'doing something well' 3. assessment is based upon industry work standards, and 4. curricula are developed in modular form
Duty	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).
Learning-Working Assignment (LWA)	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.
Modules	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.
Occupational Profile (OP)	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.
(Also see: Duty)

1.0 ATP-PART I

Occupational Profile for a BEE KEEPER

- 1.1 The OCCUPATIONAL PROFILE (OP) for a “Bee Keeper” below defines the **Duties** and **Tasks** a competent Bee Keeper 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 defined 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 developing this Occupational Profile are listed on the following page.

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

Job Expert Panel

Nkemba Mathias
East African Beekeepers
Equipment LTD

Ainembabazi Rodgers
Api Business (U) LTD

Edeku Berline Andama
KAL Institute

Abenakyo Faith
St Mary's College, Kisubi

Muhindo Geoffrey Semusoro
Rubirizi Bee Keepers CS

Abanyu Simon
Delta Bees (U) LTD

Mugweri Richard
Our Lady of Africa SS, Namilyango

Okello Norbert
St Joseph College, Layibi

Ahabwe Samuel
Kiboga District Local Government

Twinomwe Celestine
Kahondo SS, Kabale

Byamukama Venansio Wasswa
Kitende SS

Ninsiima Bonitah
St Patrick SS Ssembabule

Nnyanzi Flavia
NCDC Kyambogo

Mulumba Mutema Mathias
NCDC Kyambogo

Co-ordinator
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Ssempala Patrick
MOES/BTVET

Funded by
The Government of Uganda



THE REPUBLIC OF UGANDA
Ministry of Education and Sports

Directorate of Industrial Training

Occupational Profile

For a

"BEE KEEPER"

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

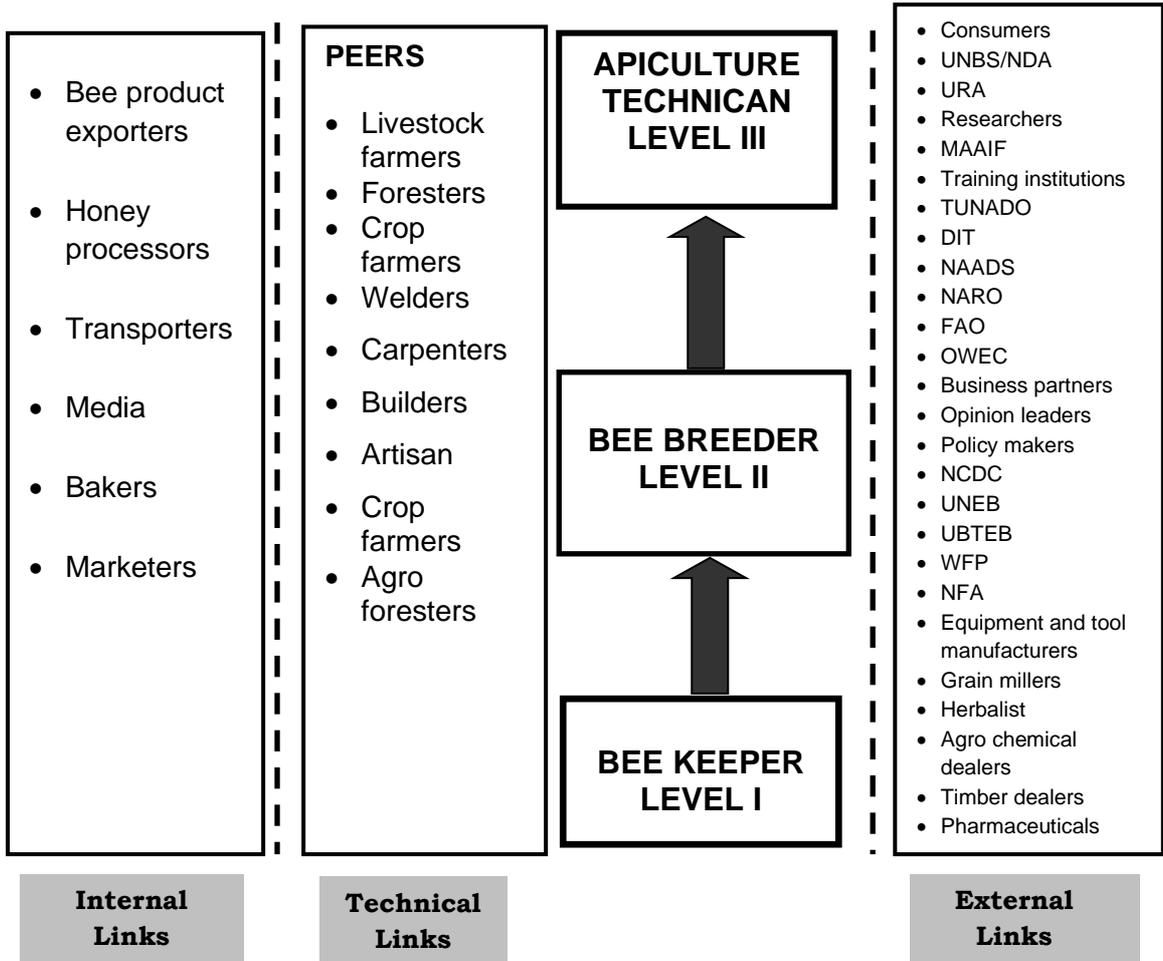
Date of workshop: 27th – 31st July, 2020

NOMENCLATURE FOR THE OCCUPATION OF A BEE KEEPER

Definition of a Bee Keeper

This is a person who manages an apiary to produce beehive products for commercial purposes.

JOB ORGANISATION CHART FOR A BEE KEEPER



Descriptions for the levels in the occupation of ‘Bee Keeper’

UVQ Level I Bee Keeper: is a person who manages bees in all types of beehives to produce products for commercial purposes.

UVQ Level II Bee breeder: Is a person who manages beehives for products and breeding purposes

UVQ Level III Bee Technician: Is a person who designs bee tools and equipment for rearing bees.

Duties and Tasks

A. PLAN BEE KEEPING WORKS	A1. Carry out feasibility study	A2. Determine apiary location	A3. Prepare financial plan
	A4. Determine site structural plan	A5. Determine factor inputs	A6. Determine bee species
	A7 Prepare work schedules	A8. Prepare procurement plan for inputs	A9. Determine production methods

B. CONSTRUCT BEEHIVE	B1 Design beehive	B2 Determine material specifications	B3 Shape beehive components
	B4 Assemble beehive	B5 Provide access to beehive	B6 Perform finishing to beehive
	B7 Fix beehive accessories e. g landing bay, pollen trap, venom collector		

C. SET UP APIARY	C1 Select apiary site	C2 Prepare site	C3 Install apiary infrastructure
	C4 Secure apiary site	C5 Bait beehive	C6 Plant forage
	D7 Provide pollen source	D8 Provide sugar supplements	D9 Plant shade trees
	C10 Acquire bee colony	C11 Provide water source	

D. MAINTAIN APIARY	D1 Maintain bee forage	D2 Eliminate pests, diseases and predators	D3 Perform corrective tasks for un colonised beehive
	D4 Maintain shade trees	D5 Maintain water source	D6 Replenish sugar supplement
	D7 Maintain pollen source	D8 Re-organise harvested hive	D9 De-comb beehive
	D10 Clean apiary	D11 Dispose apiary waste	

E. MANAGE BEE COLONY	E1 Tame bees	E2 Breed bees	E3 Supplement bee feeds
	E4 Evaluate colony development	E5 Control swarming	E6 Control absconding
	E7 Carry out colony multiplication		

F. PERFORM HARVESTING AND POST HARVEST HANDLING OF HIVE PRODUCTS	F1 Calm bees	F2 Distract bees	F3 Access honey comb
	F4 Determine maturity of honey	F5 Harvest capped honey comb	F6 Harvest propolis
	F7 Harvest bee venom	F8 Harvest pollen and bee bread	F9 Harvest bee brood
	F10 Harvest royal jelly	F11 Grade hive products	F12 Preserve hive products
	F13 Store hive products	F14 Observe quality standards	

G. MARKET HIVE PRODUCTS	G1 Brand products	G2 Package products	G3 Label products
	G4 Price products	G5 Advertise products	G6 Exhibit hive products
	G7 Transport products	G8 Sell products	G9 Communicate with customers

H. PERFORM ADMINISTRATIVE TASKS	H1. Manage human resources	H2. Keep records	H3. Network with stakeholders
	H4. Manage Finances	H5. Procure farm inputs	H6. Conduct meetings
	H7. Pursue continuous professional development	H8. Pay bills	H9. Register business
	H10. Comply with regulations and policies		

Additional Information

Related knowledge & skills	
<ol style="list-style-type: none"> 1. Beehive materials 2. Hive installation skills 3. Baiting materials 4. Effects of chemicals on bees 5. Entomology of bees 6. Waste management techniques 7. Swarming 8. Pollination 9. Colony management and maintenance 10. Botany of forage and trees suitable for bee keeping 11. Weather changes 12. Colony multiplications 13. Bee calendar 14. Bee products quality 	<ol style="list-style-type: none"> 15. Bee product preservation techniques 16. Marketing techniques 17. Communication skills 18. Record keeping 19. Tools, equipment and materials usage 20. Measurements and dimensions in apiary 21. Procurement of inputs 22. Customer care 23. Occupational health, safety and environmental precautions

Tools, Equipment and Materials		
<ol style="list-style-type: none"> 1. Bee brush 2. Knife 3. Scrappers 4. Capping forks 5. Hydrometer 6. Wire values 7. Protective gear 8. Air tight buckets 9. Flash lights 10. Honey extractor 11. Honey processor 12. Strainer 13. Saucepans 14. Honey heater 15. Food grade container 16. Fermentation cans 17. Smoking materials 18. Water 19. Fire source 20. Yeast 	<ol style="list-style-type: none"> 21. Fruit juice 22. Spirits 23. Timber 24. Nails 25. Iron sheets 26. Beeswax 27. Wires 28. Slasher 29. Panga 30. Rake 31. Barbed wire 32. Queen rearing equipment 33. Reeder box 34. Bee feeds (pollen, honey syrup/ sugar 35. Transit boxes 36. Banners 37. Brochures 38. Files 39. Posters 	<ol style="list-style-type: none"> 40. Filing boxes 41. Cabins 42. Computer 43. Stationery 44. Refractometer 45. Ethanol (94.6%) 46. Bee venom collector 47. Pollen trap 48. Bee feeders 49. Cooler box 50. Bee venom bottle 51. Wax moulds 52. Saw/Hacksaw/ Bow saw 53. Hammer 54. Hive tool 55. Propolis 56. Catcher box 57. Tape measure 58. String 59. Pegs

Attitudes / Traits / Behaviour	Future Trends and Concerns
<ol style="list-style-type: none"> 1. Friendly 2. Committed 3. Team spirit 4. Calm 5. Decent 6. Customer friendly 7. Self - motivated 8. Faithful and trustworthy 9. Avoid obnoxious odour 10. Hygienic 11. Teachable 12. Analytical 13. Cooperative 14. Be gender inclusive 15. Critical 16. Problem solver 	<ol style="list-style-type: none"> 1. Change in harvesting equipment 2. Venturing into production of other products 3. Commercialisation of the bee industry 4. Inadequate skilled personnel 5. Limited funding for bee keeping industry 6. Low production of hive products 7. Delayed colonisation of hives 8. Excessive use of acaricides/ pesticides 9. Vandalisation of beehives 10. Bush burning/ environmental degradation 11. Lack of recognition of apiculture as an independent course by the Education institutions 12. Low income earnings 13. Lack of organised market for hive products

2.0 ATP – PART II

Training Modules for a BEE KEEPER

- 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 Bee Keeping to acquire job specific skills and knowledge (i.e. competencies) module by module. A single module can be accomplished within a relatively short duration 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 learners in a given period of time.
- 2.3 The modules were developed jointly by both instructors and job practitioners. They were developed 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 BEE KEEPER QUALIFICATION LEVEL 1?

A **Bee Keeper Level I** is a person who manages bees in all types of beehives to produce products for commercial purposes.

TRAINING MODULES FOR A BEE KEEPER UVQ LEVEL 1

Code	Module Title	Average duration	
		Contact hours	Weeks
UE/BK/M1.1	Establish Apiary	160	04
UE/BK/M1.2	Make Beehives	160	04
UE/BK/M1.3	Perform Harvest and Post-harvest Handling of Beehive Products	240	06
UE/BK/M1.4	Manage Apiary	160	04
UE/BK/M1.5	Establish a Bee Keeping Enterprise	160	04
Summary	5 Training Modules	880 hours	22 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.

Code	UE/BK/M1.1
Module title	M1.1: Establish Apiary
Related Qualification	Part of Uganda Vocational Qualification (Bee Keeper UVQ 1)
Qualification Level	1
Module purpose	After completion of this module, a trainee shall be able to establish an Apiary
Learning-Working Assignments (LWAs)	<p>LWA 1/1: Set up Apiary LWA 1/2: Colonize Hives LWA 1/3: Perform Occupational Health, Safety and Environmental Protection Practices</p> <p>Note:</p> <ol style="list-style-type: none"> <i>The learning exercises may be repeated until the trainee acquires targeted competence;</i> <i>The trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</i>
Related Practical Exercises (PEXs)	<p>LWA 1/1: Set up Apiary PEX 1.1: Select site PEX 1.2: Prepare site PEX 1.3: Fence site PEX 1.4: Provide shelter and wind brakes PEX 1.5: Install beehives PEX 1.6: Label hives PEX 1.7: Set up a water source PEX 1.8: Set up sugar supplement source PEX 1.9: Grow flowering plants</p> <p>LWA 1/2: Colonize Hives PEX 2.1: Select bait material PEX 2.2: Clean the hive PEX 2.3: Smoke hives PEX 2.4: Rub hive with attractants PEX 2.5: Smear hives with beeswax PEX 2.6: Acquire colony</p> <p>LWA 1/3: Perform Occupational Health, Safety and Environmental Protection Practices PEX 3.1: Display safety notice PEX 3.2: Wear protective gear PEX 3.3: Administer first aid</p>

	<p>PEX 3.4: Manage waste</p> <p>PEX 3.5: Clean apiary</p> <p>PEX 3.6: Control fire</p> <p>PEX 3.7: Observe regulations and policies</p> <p>PEX 3.8: Sensitise neighboring community</p> <p>PEX 3.9: Conserve soil and water</p>
Occupational health and safety	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.
Pre-requisite modules	None
Related knowledge/ theory	<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"> • Apiary technology • Installation of beehives and support structures • Floriculture • First aid administration • Tools, equipment and material usage • Firefighting techniques • Soil and water conservation techniques • Regulations and policies in the bee sector • Beehive colonisation • Bee types and species • Features in apiary • Different ways of acquiring colonies
Average duration of learning	<p>160 hours (30 days) of nominal learning suggested to include:</p> <ul style="list-style-type: none"> • 5 days of occupational theory • 25 days of occupational practice
Suggestions on organisation of learning	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.
Assessment	Assessment to be conducted according to established regulations by a recognised assessment body using related practical and written test items from item bank
Minimum required tools/ equipment/ implements or equivalent	slasher, hoe, panga, hanging wires, hammer, compass, wind vane, smoker, poles, hive stands, refractometer, carpentry workshop tools, first aid kit, personnel protective gear, firefighting equipment

Minimum required materials and consumables or equivalent	beeswax, bait material, attractants, labels, reeds, timber, metal sheets, nails, cow dung, clay, sugar/molasses, water,
Special notes	

Code	UE/BK/M1.2
Module title	M1.2: Make Beehives
Related Qualification	<u>Part of</u> Uganda Vocational Qualification (Bee Keeper UVQ 1)
Qualification Level	1
Module purpose	After completion of this module, a trainee shall be able to make various types of local and transitional beehives
Learning-Working Assignments (LWAs)	<p>LWA 2/1: Make Local Beehive LWA 2/2: Make Transitional Beehive LWA 2/3: Perform Occupational Health, Safety and Environmental Protection Practices</p> <p>Note:</p> <ol style="list-style-type: none"> <i>The learning exercises may be repeated until the trainee acquires targeted competence;</i> <i>The trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</i>
Related Practical Exercises (PEXs)	<p>LWA 2/1: Make Local Beehives</p> <p>PEX 1.1: Source for materials and tools PEX 1.2: Prepare materials PEX 1.3: Take measurements PEX 1.4: Preserve the materials PEX 1.5: Make a woven hive PEX 1.6: Make a log hive PEX 1.7: Make a clay hive PEX 1.8: Make gourd hives PEX 1.9: Label hives PEX 1.10: Transport hives PEX 1.11: Store hives</p> <p>LWA 2/2: Make Transitional Hives</p> <p>PEX 2.1: Source for materials and tools PEX 2.2: Prepare materials PEX 2.3: Take measurements PEX 2.4: Preserve materials PEX 2.5: Cut materials PEX 2.6: Make Johnson's hive PEX 2.7: Make a KTB hive PEX 2.8: Label hives PEX 2.9: Transport hives PEX 2.10: Store hives</p>

	<p>LWA 2/3: Perform Occupational Health, Safety and Environmental Protection Practices</p> <p>PEX 3.1: Display safety notice PEX 3.2: Wear protective gear PEX 3.3: Administer first aid PEX 3.4: Manage waste PEX 3.5: Maintain tools and equipment PEX 3.6: Store tools and equipment PEX 3.7: Observe regulations and policies PEX 3.8: Perform firefighting</p>
Occupational health and safety	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.
Pre-requisite modules	None
Related knowledge/ theory	<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"> • Types of beehives • Materials used for making hives • Technical drawing • Joinery • Pottery • Tools and equipment usage and maintenance • First aid administration • Health and safety precautions • Firefighting techniques • Material preservation techniques
Average duration of learning	<p>160 hours (20 days) of nominal learning suggested to include:</p> <ul style="list-style-type: none"> • 5 days of occupational theory • 15 days of occupational practice
Suggestions on organisation of learning	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.
Assessment	Assessment to be conducted according to established regulations by a recognised assessment body using related practical and written test items from item bank

Minimum required tools/ equipment/ implements or equivalent	chisel, pair of scissors, pliers, clump, jack plain, mallet, hammer, screw drivers, personnel protective gear, first aid kit, firefighting equipment, saws, brace, drill, spirit level, tri-square, tape measure
Minimum required materials and consumables or equivalent	wax, metallic sheets, plastic sheets, binding wires, wire mesh, poles, timber, sand, cement, bricks/blocks/concrete, water, clay, reeds, papyrus, cow dung, strings and nails
Special notes	Materials should be selected carefully to attract bees since they are sensitive to smell

Code	UE/BK/M1.3
Module title	M 1.3: Perform Harvest and Post-Harvest Handling of Beehive Products
Related Qualification	<u>Part of</u> Uganda Vocational Qualification (Bee Keeper UVQ 1)
Qualification Level	1
Module purpose	After completion of this module, the trainee shall be able to harvest and perform post- harvest handling of all raw beehive products successfully and safely.
Learning-Working Assignments (LWAs)	<p>LWA 3/1: Harvest Honey LWA 3/2: Harvest Raw Propolis LWA 3/3: Harvest Pollen LWA 3/4: Harvest Venom LWA 3/5: Harvest Royal Jelly LWA 3/6: Harvest Brood and Bread LWA 3/7: Perform Post-Harvest Handling of Honey LWA 3/8: Perform Post-Harvest Handling of Combs LWA 3/9: Perform Occupational Health, Safety and Environmental Protection Practices</p> <p><u>Note:</u></p> <ol style="list-style-type: none"> <i>The learning exercises may be repeated until the trainee acquires targeted competence;</i> <i>The trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</i> <i>Order of execution may vary.</i>
Related Practical Exercises (PEXs)	<p>LWA 3/1: Harvest Honey PEX 1.1: Observe personal hygiene PEX 1.2: Wear protective gear PEX 1.3: Determine maturity of honey PEX 1.4: Light a smoker PEX 1.5: Calm bees PEX 1.6: Access honey combs PEX 1.7: Crop capped combs PEX 1.8: Extract honey</p>

	<p>LWA 3/2: Harvest Propolis</p> <p>PEX 2.1: Observe personal hygiene</p> <p>PEX 2.2: Wear protective gear</p> <p>PEX 2.3: Determine maturity of propolis</p> <p>PEX 2.4: Light a smoker</p> <p>PEX 2.5: Calm bees</p> <p>PEX 2.6: Identify propolis deposits</p> <p>PEX 2.7: Collect propolis</p> <p>PEX 2.8: Store Propolis</p>
	<p>LWA 3/3: Harvest Pollen</p> <p>PEX 3.1: Observe personal hygiene</p> <p>PEX 3.2: Wear protective gear</p> <p>PEX 3.3: Determine maturity of pollen</p> <p>PEX 3.4: Light a smoker</p> <p>PEX 3.5: Calm bees</p> <p>PEX 3.6: Place pollen trap</p> <p>PEX 3.7: Collect pollen</p> <p>PEX 3.8: Store pollen</p>
	<p>LWA 3/4: Harvest Venom</p> <p>PEX 4.1: Observe personal hygiene</p> <p>PEX 4.2: Wear protective gear</p> <p>PEX 4.3: Determine maturity of venom</p> <p>PEX 4.4: Light a smoker</p> <p>PEX 4.5: Calm bees</p> <p>PEX 4.6: Place venom extractor</p> <p>PEX 4.7: Collect venom</p> <p>PEX 4.8: Store venom</p>
	<p>LWA 3/5: Harvest Royal Jelly</p> <p>PEX 5.1: Observe personal hygiene</p> <p>PEX 5.2: Wear protective gear</p> <p>PEX 5.3: Identify strong colony</p> <p>PEX 5.4: Prepare nuclei boxes</p> <p>PEX 5.5: Light a smoker</p> <p>PEX 5.6: Calm bees</p> <p>PEX 5.7: Cage the queen bee</p> <p>PEX 5.8: Graft eggs</p> <p>PEX 5.9: Transfer grafted eggs into queen less colony</p> <p>PEX 5.10: Monitor hive performance</p> <p>PEX 5.11: Extract royal jelly from queen cells</p> <p>PEX 5.12: Store royal jelly</p>
	<p>LWA 3/6: Harvest Brood and Bread</p> <p>PEX 6.1: Observe personal hygiene</p>

	<p>PEX 6.2: Wear protective gear</p> <p>PEX 6.3: Determine maturity of brood and bread</p> <p>PEX 6.4: Light a smoker</p> <p>PEX 6.5: Calm bees</p> <p>PEX 6.6: Access honey combs</p> <p>PEX 6.7: Crop combs with brood and bread</p> <p>PEX 6.8: Store harvested brood</p> <p>PEX 6.9: Store harvested bread</p>
	<p>LWA 3/7: Perform Post-Harvest Handling of Honey</p> <p>PEX 7.1: Clean tools and equipment</p> <p>PEX 7.2: Sanitise tools and equipment</p> <p>PEX 7.3: Clean honey combs</p> <p>PEX 7.4: Grade honey combs</p> <p>PEX 7.5: Extract honey from combs</p> <p>PEX 7.6: Filter honey</p> <p>PEX 7.7: Remove wax scum</p> <p>PEX 7.8: Pack honey</p> <p>PEX 7.9: Store honey</p>
	<p>LWA 3/8: Perform Post-Harvest Handling of Combs</p> <p>PEX 8.1: Clean crushed combs</p> <p>PEX 8.2: Melt crushed combs</p> <p>PEX 8.3: Filter mixture</p> <p>PEX 8.4: Cool mixture</p> <p>PEX 8.5: Separate wax from water</p> <p>PEX 8.6: Clean wax</p> <p>PEX 8.7: Pack wax</p> <p>PEX 8.8: Store wax</p>
	<p>LWA 3/9: Perform Occupational Health, Safety and Environmental Protection Practices</p> <p>PEX 9.1: Perform firefighting</p> <p>PEX 9.2: Wear protective gear</p> <p>PEX 9.3: Manage waste</p> <p>PEX 9.4: Sensitise community</p> <p>PEX 9.5: Maintain general hygiene and sanitation</p> <p>PEX 9.6: Observe regulations and policies</p> <p>PEX 9.7: Administer first aid</p>
Occupational health and safety	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
Pre-requisite modules	None

Related knowledge/ theory	<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"> • Bee types and species • Hive setup and installation • Components of protective gear and their uses • Lighting and use of a smoker • Materials suitable to be used in the smoker • Hive product maturity indicators • Propolis composition and usage • Harvesting time and conditions • Hive product harvesting and post harvesting procedures • Types of honey • Tools and equipment usage • Type of fuel to be used in the smoker • Occupational health and safety precautions • Storage of honey, propolis, pollen, venom, royal jelly, brood and bread • Firefighting techniques • Botany of forage plants and trees for bees • Agronomy and agronomic practices • Crop pest control • Bee products • Types of storage containers • Hygiene and safety procedures during post-harvest handling
Average duration of learning	<p>240 hours (30 days) of nominal learning suggested to include:</p> <ul style="list-style-type: none"> • 5 days of occupational theory • 25 days of occupational practice
Suggestions on organisation of learning	<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>
Assessment	<p>Assessment to be conducted according to established regulations by a recognised assessment body using related practical and written test items from item bank.</p>
Minimum required tools/ equipment/ implements or equivalent	<p>smoker, knife, buckets, bee suit and veil, boots, gloves, nuclei boxes, venom collector, power source, protective gear, storage bottle, freezer, controller, scrapper, bee brush, beehive opener, uncapping knife, torch/lamp, strainer, buckets, saucepans, storage containers, moulds</p>

Minimum required materials and consumables or equivalent	dry grass, cow dung, fire, soil, labels, beekeeper's calendar, floral calendar, Cloth, fire source, water, combs,
Special notes	<ul style="list-style-type: none">• Provide standby source of fire• At least two people should be involved in harvesting

Code	UE/MP/M1.4
Module title	M1.4: Manage Apiary
Related Qualification	<u>Part of</u> Uganda Vocational Qualification (Bee Keeper UVQ 1)
Qualification Level	1
Module purpose	After completion of this module, a trainee shall be able to carry out basic apiary management practices
Learning-Working Assignments (LWAs)	<p>LWA 4/1: Make Colonies in Apiary LWA 4/2: Carryout Simple Pests and Predator Control LWA 4/3: Manage Bee Stings LWA 4/4: Perform Occupational Health, Safety and Environmental Protection Practices</p> <p>Note:</p> <ol style="list-style-type: none"> <i>The learning exercises may be repeated until the trainee acquires targeted competence;</i> <i>The trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</i>
Related Practical Exercises (PEXs)	<p>LWA 4/1: Maintain Colonies in Apiary PEX 1.1: Inspect hives PEX 1.2: Carryout de-combing PEX 1.3: Carryout supplementary feeding PEX 1.4: Repair hives and stands PEX 1.5: Provide shade PEX 1.6: Maintain hygiene PEX 1.7: Control pollutants PEX 1.8: Maintain colony records</p> <p>LWA 4/2: Control Pests and Predators PEX 2.1: Inspect hives PEX 2.2: Identify pests and predators PEX 2.3: Clean apiary PEX 2.4: Apply organic repellent on poles PEX 2.5: Fix guards on poles PEX 2.6: Make traps PEX 2.7: Fix traps</p> <p>LWA 4/3: Manage Bee Stings PEX 3.1: Wear protective gear PEX 3.2: Puff smoke around the Victim PEX 3.3: Isolate the victim PEX 3.4: Administer first aid</p>

	<p>LWA 4/4: Perform Occupational Health, Safety and Environmental Protection Practices</p> <p>PEX 4.1: Perform bio safety screening PEX 4.2: Dispose of predators and pests PEX 4.2: Control intruders PEX 4.3: Display safety notices PEX 4.4: Sensitise community PEX 4.4: Administer first aid PEX 4.5: Manage waste PEX 4.6: Control fire outbreaks PEX 4.7: Observe regulations and policies PEX 4.8: Conserve biodiversity</p>
Occupational health and safety	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.
Pre-requisite modules	None
Related knowledge/ theory	<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"> • Biosafety • Types and species of bees • Bee behavior • Conditions that affect bee keeping • Places suitable for apiaries • Factors that affect bees rearing • Factors that facilitate good bees rearing • Components of an apiary • Personal protective gears • Apiary products • Uses of the bee-hive products • Treatment of bee sting victim • First aid administration • Bee repellents and attractants • Record keeping • Pollutants • Supplementary feeding

Average duration of learning	160 hours (20 days) of nominal learning suggested to include: <ul style="list-style-type: none"> • 05 days of <i>occupational theory</i> • 15 days of <i>occupational practice</i>
Suggestions on organisation of learning	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.
Assessment	Assessment to be conducted according to established regulations by a recognised assessment body using related practical and written test items from item bank
Minimum required tools/ equipment/ implements or equivalent	beehives, slashes, protective gears, smoker, first aid kit, combing knives, computer, stainless steel containers, traps, poles, bio -safety screening facility, firefighting equipment, kiln, source of light, fencing materials, honey filters.
Minimum required materials and consumables or equivalent	bee colonies, organic repellent, traps, poles, guards, bee feeds, smoke source, sugar supplement, water source, stationery.
Special notes	

Code	UE/MP/M1.5
Module title	M1.5: Establish a Bee Keeping Enterprise
Related Qualification	<u>Part of</u> Uganda Vocational Qualification (BEE KEEPER UVQ 1)
Qualification Level	1
Module purpose	After completion of this module, a trainee shall be able to start, manage and sustain a bee keeping enterprise.
Learning-Working Assignments (LWAs)	<p>LWA 5/1: Set up Bee Keeping Enterprise</p> <p>LWA 5/2: Market Beehive Products</p> <p>LWA 5/3: Keep Records</p> <p>LWA 5/4: Perform Occupational Health, Safety and Environmental Protection Practices</p> <p>Note:</p> <ol style="list-style-type: none"> <i>The learning exercises may be repeated until the trainee acquires targeted competence;</i> <i>The trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.</i>
Related Practical Exercises (PEXs)	<p>LWA 5/1: Plan a Beekeeping Enterprise</p> <p>PEX 1.1: Conduct a feasibility study</p> <p>PEX 1.2: Select farm site</p> <p>PEX 1.3: Determine bee species</p> <p>PEX 1.4: Source for apiary farm inputs</p> <p>PEX 1.5: Identify labour requirements</p> <p>PEX 1.6: Determine production methods</p> <p>PEX 1.7: Develop apiary site structural plan</p> <p>PEX 1.8: Prepare financial plan</p> <p>PEX 1.9: Prepare budget</p> <p>PEX 1.10: Prepare procurement plan</p> <p>LWA 5/2: Market Apiary Products</p> <p>PEX 2.1: Conduct market Survey</p> <p>PEX 2.2: Brand products</p> <p>PEX 2.3: Package products</p> <p>PEX 2.4: Label products</p> <p>PEX 2.5: Price products</p> <p>PEX 2.6: Advertise produce</p> <p>PEX 2.7: Exhibit products</p> <p>PEX 2.8: Generate records</p>

	<p>PEX 2.9: Load products PEX 2.10: Transport products PEX 2.11: Offload products PEX 2.12: Sell products PEX 2.13: Communicate with customers</p> <p>LWA 5/3: Keep Records PEX 3.1: Prepare production records PEX 3.2: Prepare human resource records PEX 3.3: Prepare sales records PEX 3.4: Prepare financial records PEX 3.5: Prepare inventory records PEX 3.6: Prepare health records</p> <p>LWA 5/4: Perform Basic Administrative Tasks PEX 4.1: Recruit workers PEX 4.2: Organise meetings PEX 4.3: Supervise works PEX 4.4: Appraise workers PEX 4.5: Prepare financial reports PEX 4.6: Create external linkages PEX 4.7: Network with producers/stakeholders PEX 4.8: Train workers PEX 4.9: Formalise bee keeping business</p> <p>LWA 5/5: Perform Occupational Health, Safety and Environmental Protection Practices PEX 5.1: Train workers on safety issues PEX 5.2: Display safety notices PEX 5.3: Maintain hygiene PEX 5.4: Wear personnel protective gear PEX 5.5: Provide security PEX 5.6: Administer first aid PEX 5.7: Sensitise workers on Health issues PEX 5.8: Manage waste PEX 5.9: Comply with regulations and policies</p>
Occupational health and safety	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.
Pre-requisite modules	None
Related knowledge/ theory	<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"> • Starting a business • Record keeping • Qualities of an entrepreneur • Importance of networking • Types of related products on market • Methods of marketing products • Elements of a business plan • Characteristics of a successful business • Methods of advertising • Importance of a market survey • Importance of tax payment • Procedure for costing
Average duration of learning	160 hours (20 days) of nominal learning suggested to include: <ul style="list-style-type: none"> • 5 days of <i>occupational theory</i> • 15 days of <i>occupational practice</i>
Suggestions on organisation of learning	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.
Assessment	Assessment to be conducted according to established regulations by a recognised assessment body using related practical and written test items from item bank
Minimum required tools/ equipment/ implements or equivalent	calculator, telephone, computer, media, Internet facility, transport means, first aid kit
Minimum required materials and consumables or equivalent	ledger books, packaging materials, pens, pencils, papers, reference materials, labels, brochures, banners,
Special notes	

3.0 ATP- PART III

Assessment Instruments for a BEE KEEPER

- 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 BEE KEEPER are included.

3.9 Overview of Test Item Samples Included

No	Type of test Items	Numbers included
1.	Written (Theory)- short answer	1
2.	Written (Theory)- multiple choice	1
3.	Written (Theory)- matching with generic	2
4.	Written (Theory)- matching with work-sequence	2
5.	Performance (Practical) test items	2
Total		8

WRITTEN TEST ITEMS (SAMPLES)

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 1																		
Occupational Title:	Bee Keeper																		
Competence level:	Level 1																		
Code no.																			
Test Item type:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Short answer</td> <td colspan="3" style="text-align: center;">√</td> </tr> <tr> <td>Multiple choice</td> <td colspan="3"></td> </tr> <tr> <td rowspan="2">Matching item</td> <td style="width: 25%;">Generic</td> <td style="width: 25%;">Cause-Effect</td> <td style="width: 25%;">Work-sequence</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>				Short answer	√			Multiple choice				Matching item	Generic	Cause-Effect	Work-sequence			
Short answer	√																		
Multiple choice																			
Matching item	Generic	Cause-Effect	Work-sequence																
Complexity level:	C2																		
Date of OP:	July 2020																		
Related module:	M1.4																		
Time allocation:	4 minutes																		

Test Item	Give two reasons why it is advisable to smear grease on hive stands?
Answer spaces	(i) (ii)
Expected key (answers)	(i) To prevent crawling insects/pests from getting to the hives (ii) To preserve hive stands from rusting (iii) To preserve hive stands from insect attacks

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 2			
Occupational Title:	Bee Keeper			
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:	July 2020			
Related module:	M1.1			
Time allocation:	2 minutes			

Test Item	Which of the following materials is best recommended for baiting a hive?
Distractors and correct answer	<ul style="list-style-type: none"> A. Lemon grass B. Smoke C. Venom D. Honey comb

Key (answer)	D
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DIT/ QS	Test Item Database Written (Theory) Test Item- no. 3			
Occupational Title:	Bee Keeper			
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:	July 2020			
Related module:	M1.3			
Time allocation:	4 minutes			

Test Item	Match the following terms with specific activities involved
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Column A (Terms)	
1	Skimming
2	Chunking
3	Sieving
4	Settling

Column B (Activity)	
A	Filtering honey
B	Sedimenting impurities
C	Centrifuging honey
D	Sorting combs
E	Breaking combs
F	Scooping scum

Key (answer)	1:F, 2:E, 3:A, 4:B
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DIT/ QS	Test Item Database Written (Theory) Test Item- no. 4																		
Occupational Title:	Bee Keeper																		
Competence level:	Level 1																		
Code no.																			
Test Item type:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Short answer</td> <td colspan="3"></td> </tr> <tr> <td>Multiple choice</td> <td colspan="3"></td> </tr> <tr> <td rowspan="2" style="background-color: #f4a460;">Matching item</td> <td style="background-color: #f4a460;">Generic</td> <td style="background-color: #d9ead3;">Cause-Effect</td> <td style="background-color: #d9ead3;">Work-sequence</td> </tr> <tr> <td style="text-align: center;">√</td> <td></td> <td></td> </tr> </table>				Short answer				Multiple choice				Matching item	Generic	Cause-Effect	Work-sequence	√		
Short answer																			
Multiple choice																			
Matching item	Generic	Cause-Effect	Work-sequence																
	√																		
Complexity level:	C2																		
Date of OP:	July 2020																		
Related module:	M1.3, M1.4																		
Time allocation:	3 minutes																		

Test Item	Match the bee castes with the roles listed below
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Column (A)	
1	Worker
2	Queen
3	Drone

Column (B)	
A	Determine weather
B	Laying eggs
C	Ensure fertilisation
D	Exhibit division of labour
E	Delay hatching

Key (answer)	1:D, 2:B, 3:C
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DIT/ QS		Test Item Database Written (Theory) Test Item- no. 5			
Occupational Title:	Bee Keeper				
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:	July 2020				
Related module:	M1.3				
Time allocation:	3 minutes				

Test Item	Arrange the following steps of post-harvest handling of honey in their chronological order
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Column A (chronology)	Column B (work steps) in wrong chronological order	
1 st	A	Strain honey
2 nd	B	Chunk honey combs
3 rd	C	Sort honey combs
4 th	D	Store honey combs
5 th	E	Press honey combs

Key (answer)	1-C, 2-B, 3-E, 4-A, 5-D
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DIT/ QS	Test Item Database Written (Theory) Test Item- no. 6			
Occupational Title:	Bee Keeper			
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:	July 2020			
Related module:	M1.2			
Time allocation:	5 minutes			

Test Item	Arrange the following steps followed in making a KTB hive in their chronological order
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Column A (chronology)	Column B (work steps) in wrong chronological order	
1 st	A	Measure timber
2 nd	B	Cut timber
3 rd	C	Identify material
4 th	D	Plane timber
5 th	E	Assemble parts

Key (answer)	1-C, 2-D, 3-A, 4-B, 5-E
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PERFORMANCE TEST ITEMS (SAMPLES)

DIT/ QS	Test Item Database Performance Test Item- no. 7
Occupational Title:	Bee Keeper
Competence level:	Level 1
Code no.	
Test Item:	Harvest honey from a KTB hive
Complexity level:	P3
Date of OP:	July 2020
Related module:	M1.3
Related skills and knowledge:	<ul style="list-style-type: none"> • Usage of honey harvesting tools and equipment • Methods of harvesting honey • Apiary management • Honey formation in beehives • Maturity indicators of honey • Protective gear and how it is used • Reasons for smoking and how a smoker is used • First aid for bee stings • Honey comb handling techniques • Honey preservation and storage
Required tools, Materials and Equipment:	gloves, facial bee veil, gumboots, smoker, air tight container, smoking materials, source of fire, bee brush, comb knife, hive tool, water
Time allocation:	3 hours
Preferred venue:	Apiary
Remarks for assessors	Candidates must be dressed in full protective gear
Remarks for assessors	<ul style="list-style-type: none"> • Avail candidates with all required tools, equipment and materials • Avail each candidate with at least one helper in the apiary

#	Assessment criteria	Scoring guide	Max Score	
			Process	Result
1	Preparation for harvesting	Assembled materials e.g. water, smoker, smoking material	2	
		Assembled tools and equipment e.g. knife, food grade air tight container/can	2	

		Prepared fire source	1	
		Put starter smoking material into smoker	1	
		Lighted smoker	1	
		Filled smoker with more smoking material	1	
		Thick smoke observed		2
		Added layer of fresh green material	2	
		Puffed smoker to maintain smoke production	2	
		Thick smoke maintained		4
		Closed smoker observed		2
		Wore protective gear i.e		
		Head gear	1	
		Veil	1	
		Overall	1	
		Gumboots	1	
		Zipped protective gear	1	
		Gumboots and gloves worn last		2
2	Calming of bees	Approached hive from back or side	1	
		Applied smoke	1	
		Gentle application of smoke observed		2
		Smoke applied at the entrance first and all around the hive		2
		Continuous application of smoke observed		4
		Allowed time lag of 3- 5 minutes for smoke to circulate in the hive		2
3	Harvesting of honey combs	Opened beehive	2	
		Lid seal opened sideways observed		3
		Puffed smoke into the hive again	2	
		Smoke observed from the back of the hive		3
		Cut and removed combs	2	
		Only capped and $\frac{3}{4}$ capped combs cropped		4
		No comb fragments seen on the ground		3

		Brushed bees off combs	2	
		Gentle brushing of bees observed		2
		Bees gently brushed back inside the hive		2
		Clean combs, free of bees observed		4
		Graded honey combs	2	
		Grading done concurrently with cropping of the combs		3
		Placed capped combs in air tight containers	2	
		Placed uncapped combs in air tight containers	2	
		Both capped and uncapped combs placed in separate air tight containers observed		2
		Placed back the top bars and cover/lid	2	
		Top bars placed back to their original position observed		3
		Tightly fitted cover observed and verified		3
4	Performing of post-harvest activities	Extinguished fire	2	
		No fire or smoke observed in and around the apiary		2
		Removed dropped combs and any other substances stained with honey taken off the apiary	2	
		Apiary with no stains of honey and any other waste observed		2
		Took containers with honey combs out of the apiary		1
		Brushed bees from self and containers	1	
		No bees observed on self and containers		2
		Moved out of the apiary	1	
		Zigzag pattern movement from the apiary observed		1
	TOTAL		41	60
	Maximum score (Y)	X/Y	101	

DIT/ QS	Test Item Database Performance Test Item- no. 8
Occupational Title:	Bee Keeper
Competence level:	Level 1
Code no.	
Test Item:	Filter ½ litre of honey from the combs provided
Complexity level:	P2
Date of OP:	July 2020
Related module:	M1.2
Related skills and knowledge:	<ul style="list-style-type: none"> • Hygiene and safety • Tools and equipment • Waste management • Honey skimming • Properties of honey • Techniques of churning • Techniques of pressing • Effects of water on honey • Quality control
Required tools, Materials and Equipment:	Filtering materials, gloves, head gear, overall, air tight containers, soap with no scent, towel, gumboots
Time allocation:	2 hours
Preferred venue:	Storing room/ processing room
Remarks for candidates	Candidates must be dressed in full protective wear
Remarks for assessors	Avail all the necessary materials to the candidate

#	Assessment criteria	Scoring guide	Max Score	
			Process	Result
1	Preparation for filtering	Assembled material	2	
		Assembled tools and equipment	2	
		Wore protective gear:		

		Hand gloves Face mask Head gear Gumboots Apron Overcoat		4
2	Filtering of honey	Chunked honey combs	3	
		Small chunked honey combs observed		3
		Transferred chunked honey combs to the filter	2	
		Filtered chunked honey combs	2	
		Particle free honey observed in clean container		4
		Residues of combs observed on the filter		1
		Particle free honey observed in clean air tight container		3
3	Performing of post filtering activities	Removed residues from the strainer	2	
		Cleaned tools and equipment	2	
		Dirt free tools and equipment observed		2
		Cleaned workplace	2	
		Cleaned workplace observed		2
		Verified material weights against recipe		4
	TOTAL		17	23
	Maximum score (Y)	X/Y	40	

4.0 ATP- PART IV

INFORMATION ON REVIEW PROCESS

4.1 Occupational Profile Development (July 2020)

The Assessment and Training Package was exclusively reviewed by job practitioners of the Bee Keeper occupation, Secondary School Teachers who double as examiners of Agriculture with the Uganda National Examinations Board (UNEB) and Curriculum Development Specialists working with the National Curriculum Development centre (NCDC).

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

4.2 Training Module Development (July 2020)

Based on the reviewed Occupational Profile for a Bee Keeper of July 2020, Training Modules were reviewed by job practitioners, guided by UVQF Facilitators.

4.3 Test Item Development (July 2020)

Based on the reviewed Occupational Profile for a Bee Keeper of July 2020, and Training Modules of July 2020, Test Items were reviewed by combined panels of Teachers and job practitioners, guided by UVQF Facilitators.

4.4 Methodology

The rationale for the Assessment and Training Package development 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 teachers and job practitioners' panels consolidated the development 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 review exercise were constituted by members from the following organisations:

Review Panel		
No.	Name	Institution/Organisation
1.	Mr. Mulumba Mutema Mathias	NCDC Kyambogo
2.	Ms. Nyanzi Flavia	NCDC Kyambogo
3.	Mr. Nkemba Mathias	East African Bee Keepers
4.	Mr. Edeku Berline Andama	KAL Institute
5.	Mr. Mugweri Richard	Our lady of Africa S.S. Namilyango (UNEB Examiner)
6.	Ms. Abenakyo Faith	St Mary's College Kisubi (UNEB Examiner)
7.	Mr. Byamukama Venansio	Kitende S.S.S
8.	Mr. Ahabwe Sam	Bee Keeper/District Entomologist
9.	Mr. Ainembabazi Rodgers	Api Business (U) Ltd
10.	Mr. Abanyu Simon	Delta Bees (U) Ltd
11.	Mr. Twinomwe Celestine	Kahondo S.S. (UNEB Examiner)
12.	Mr. Okello Norbert	St. Joseph's College, Layibi (UNEB Examiner)
13.	Mr. Muhindo Geoffrey Isemusoro	Rubirizi Bee Keepers CS
14.	Ms. Ninsiima Bonitah	St. Patrick S.S Ssembabule

4.6 Facilitator team

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

1. **Team Leader:** Ms. Mukyala Ruth, Ag Deputy Director, DIT
2. **Facilitators:** Ms. Komugisha Noeline Ag. SQO, DIT; Ms. Kyarizi Lovance QO, DIT.
3. **Data Entrants:** Ms. Ahimbisibwe Judith, Tuhirirwe Doreen, Kibira Benjamin Alex and Baliraba Elizabeth
4. **Compiled by:** Ms. Ahimbisibwe Judith, Tuhirirwe Doreen, Kibira Benjamin Alex and Baliraba Elizabeth, Data Entrants, DIT and edited by Ms. Mukyala Ruth Ag. Deputy Director Qualification Standards Dept. DIT
5. **Coordinated by:** Mr. Byakatonda Patrick, Ag. Director, DIT; and Ms. Mukyala Ruth Ag. Deputy Director Qualification Standards Dept. DIT

4.7 Reference time:

The Assessment and Training Package was compiled in August 2020 and may be periodically revised to match the dynamic trends in the occupation and hence issued in different versions.

References:

1. Aggrey Nyanjom and Jacob O. Konyango (2004). Certificate Agriculture: East African Educational Publishers LTD
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