



An Bord Oideachais agus Oiliúna Chathair Bhaile Átha Cliath
City of Dublin Education and Training Board

Programme Module

Plant Propagation

leading to

Level 3 QQI Component: Plant Propagation 3N0569

Please note the following prior to using this programme module descriptor:

- This programme module can be delivered as a stand alone module or as part of the:
 - 1. Level 3 QQI Certificate in General Learning 3M0874**
 - 2. Level 3 QQI Certificate in Employability Skills 3M0935**
 - 3. Level 3 QQI Certificate in Information and Communication Technologies 3M0877.**
- Upon successful completion of this programme module a learner will achieve 5 credits towards the CDETb Level 3 QQI Certificates in General Learning, Employability Skills or Information and Communication Technologies.
- A learner needs to achieve a minimum of 60 credits in order to achieve the Level 3 QQI Certificates in General Learning, Employability Skills or Information and Communication Technologies.
- Teachers/tutors should familiarise themselves with the information contained in CDETb's programme descriptor for Everyday Living Skills, Skills for the Workplace or Introduction to Information and Communication Technologies prior to delivering this programme module.
- In delivering this programme module teachers/tutors will deliver class content in line with the Guidelines for Teaching and Learning included in this programme module.
- In assessing learners, teachers/tutors will assess according to the information included in this programme module. Teachers/tutors are required to devise Assessment Brief/s for the Collection of Work and Skills Demonstration.
- Where overlap is identified between the content of this programme module and one or more other programme module(s), teachers/tutors are encouraged to integrate the delivery of this content.
- Where there is an opportunity to facilitate learners to produce one piece of assessment evidence which demonstrates the learning outcomes from more than one programme module, teachers/tutors are encouraged to integrate assessment.

Overview of the Programme Module

The Programme Module is structured as follows:

Section 1 to 8: contains important information for the teacher/tutor about the credit value, title, code, etc. of the programme module.

Section 9: details the learning outcomes prescribed for the programme module by QQI. These outcomes are set by QQI and cannot be changed in any way by the CDETb or individual teachers/tutors.

Section 10: outlines suggestions and guidelines for teaching the module. It contains useful information and ideas for teachers/tutors and can be helpful in clarifying learning outcomes.

Section 11: contains the relevant information in relation to the assessment of the module. As the teacher/tutor is the assessor of the work, this section is essential reading.

Section 11a specifically prescribes the way in which learners are required to present evidence for assessment.

Learner Marking Sheet: this is the marking sheet that must be attached to the assessment portfolio and signed by the teacher/tutor and the learner.

Programme Module	Award
1. Title of Programme Module Plant Propagation	2. Component Name and Code Level 3 Plant Propagation 3N0569
3. Duration in Hours of Programme Module 50	4. Credit Value 5
5. Assessment Technique Collection of Work 20% Skills Demonstration 80%	6. Specific Requirements Centres must have access to the range of services, professional products, tools, materials and equipment to ensure the learner has the opportunity to cover all of the practical activities
7. Aims of the Programme Module This programme module aims to equip the learner with the knowledge, skill and competence involved in the propagation of a range of plants. 8. Objectives: <ul style="list-style-type: none"> • to provide an understanding of the principles of plant propagation • to provide an understanding of the practices of plant propagation • to foster core competencies and knowledge applicable to the horticultural sector. 	
9. Learning Outcomes of Level 3 Plant Propagation Code 3N0569 The learner will be able to: <ol style="list-style-type: none"> 1. list the tools, materials and equipment required to produce a range of plants, using common propagation techniques 2. explain the effect of temperature, water and fertility on the life cycle of a plant 3. select suitable examples of a range of cuttings including softwoods, hardwood, semi-hardwood, herbaceous, nodal, intermodal, heeled, mallet, leaf and root 4. insert cuttings in a rooting medium using appropriate techniques and materials 5. demonstrate the correct technique of layering and division 6. sow a selection of seeds using appropriate techniques and materials, indoors or outdoors, to include annuals, biennials, perennials, vegetables and grass 7. apply appropriate health, safety and personal hygiene procedures when propagating plants 8. demonstrate the application of communications, team working and quality awareness in a horticultural environment. 	
Delivery Strategies and Learning Activities The programme module could be delivered through classroom-based learning activities, team work, group discussions, one-to-one tutorials, field trips, case studies, role play and other relevant activities. The development of team working skills and effective communications skills should be integrated where possible in the delivery of this module. The application of these skills must be demonstrated in the Collection of Work/Skills Demonstrations. There are practical elements to this module requiring access to a range of materials, resources and equipment and the learner should be allocated adequate time and facilities to complete each task. All practical activities should exemplify safe working practices and reinforce standard health, safety and environmental concerns.	

10. Guidelines for Teaching and Learning

Please note: the following guidelines suggest a sequence for the teaching of this module. In some cases, this may differ from the sequence of learning outcomes as outlined in section 9.

Getting started

*In order to help the learner achieve **Learning Outcome 1** in particular, consider doing the following:*

- Familiarise the learner with names and functions of tools and equipment required to carry out basic plant propagation techniques, e.g. secateurs, knife, spray bottle, plant propagators, trowel, growing media, rooting hormones, etc.

Important information

*In order to help the learner achieve **Learning Outcome 2** in particular, consider doing the following:*

- Explore with the learner how light, temperature and fertility conditions affect the life cycle of the plant. Enable the learner to:
 - Outline the life cycle of at least two of the following: half-hardy annual, biennial, flowering plants, shrubs, vegetables and bulbs.
 - Describe the environmental requirements of a plant throughout its life cycle in terms of temperature levels, availability of water, nutrients and oxygen.
 - Design and carry out an experiment that will indicate how poor environmental growth conditions will have an adverse effect on successful plant propagation.
 - Describe the correct management of the environment required to promote the rooting process.

Selecting the best

*In order to help the learner achieve **Learning Outcome 3** in particular, consider doing the following:*

- Identify with the learner the tools and equipment needed for taking cuttings, (secateurs, snips, knives, trays, plastic bags, etc.). The learner should be aware of the necessity to use clean and sharp secateurs, pots, etc
- Exemplify with the learner relevant considerations for the removal from stock plant according to species and structure. The learner should have a basic understanding of the best methods for different plants, e.g.,
 - stem cuttings - softwood,
 - semi-ripe - hardwood, leafy and deciduous plants,
 - nodal and internodal - tender plants, shrubs, herbaceous perennials,
 - leaf cuttings & leaf bud cuttings – indoor / house plants
 - root cuttings (thick and thin), method used for some alpiners, herbaceous and climbing plants, trees and shrubs
- The learner must be aware of the importance of time of year, time of day, stage of growth, correct positioning of cuts, and so on
- Exemplify with the learner how to select suitable specimens for cuttings. The learner must know how to select specimens that are true to type and fit for purpose (e.g., potential cutting must be of an

appropriate size, free from pests, diseases and physical damage, select from strong and healthy parent plants.)

Inserting the cutting

In order to help the learner achieve Learning Outcome 4 in particular, consider doing the following:

- Describe and display suitable rooting media such as sphagnum moss, vermiculite, sand, perlite, ready-made rooting composts and combinations of the above.
- Describe and demonstrate the function and correct application of rooting powders to cuttings.
- Demonstrate and enable the learner to carry out the correct insertion methods of a variety of cuttings into media suitable for successful propagation, with particular attention being paid to depth of insertion.
- Describe the suitability of a variety of containers to be used for propagating cuttings.

Layering and division

In order to help the learner achieve Learning Outcome 5 in particular, consider doing the following:

- Demonstrate, and enable the learner to carry out, layering a woody shrub (e.g. Forsythia) using branch wounding and dusting with a rooting powder followed by burying and anchoring.
- Demonstrate and enable the learner to carry out the correct air layering procedure by carrying out the process using a suitable plant (e.g. rubber plant).
- Demonstrate, and enable learner to carry out making the cut, holding it open, dusting with rooting powder, wrapping the wound with plastic and sealing the package.
- Demonstrate, and enable the learner to carry out, a simple plant division propagation technique by dividing a plant and planting on each division into a suitable medium.

Sowing seeds

In order to help the learner achieve Learning Outcome 6 in particular, consider doing the following:

- Demonstrate, and enable the learner to carry out sowing a selection of seeds including half-hardy annuals, biennials, perennials, vegetables and grass, following instructions on seed packets and sowing indoors or outdoors as appropriate
- With the learner, keep a diary of development of the plants.
- Discuss benefits of propagating plants from seed.

More important information

In order to help the learner achieve Learning Outcome 7 in particular, consider doing the following:

- Identify and discuss a range of common hazards
- Explain and discuss the effects of exposure to common hazards
- Emphasise the importance of reading and following instructions on containers and following correct storage and disposal procedures for any chemicals used
- Use protective clothing and equipment when necessary
- Demonstrate how to handle and use tools and machinery safely
- Discuss and demonstrate relevant safe working practices as outlined in the Safety, Health and Welfare at Work Act 2005.

Other skills

In order to help the learner achieve Learning Outcome 8 in particular, consider doing the following:

Facilitate learners to:

- Identify areas of work which require cooperation
- Identify areas of personal responsibility
- Work to agreed deadlines
- Follow instructions
- Express ideas, opinions and concerns appropriately

11.a Specific Information Relating to the Assessment Techniques

The assessor is required to devise Assessment Brief/s for the Collection of Work and Skills Demonstration. In devising the Assessment Brief/s, care should be taken to ensure that the learner is given the opportunity to show evidence of ALL learning outcomes. Each learner is required to work alone in completing the Collection of Work. There is no facility for this Collection of Work to be completed as a group.

Evidence that the learner has achieved the learning outcomes may take a variety of forms including tutor verification of the learner's contribution, learner worksheets, diagrams, cloze tests, multiple choice statements, visual presentation or other appropriate evidence in the form of written, oral, graphic, audio, visual or any combination of these. Any audio or visual evidence must be provided in a suitable format. All of the evidence must be retained in the learner's assessment portfolio.

Collection of Work	20%
<p>The Collection of Work may be produced throughout the duration of this programme module. It must be clearly indicated where evidence covers more than one learning outcome.</p> <p>The learner will compile a Collection of Work to include</p> <ol style="list-style-type: none"> 1. Evidence of knowledge of the tools and equipment involved in the process of plant propagation, to include labelled diagrams and/or photographs of the equipment being used. 2. Evidence of the learner developing an understanding of the life cycle of plants and the environmental conditions required for successful plant propagation, including a diary of propagation procedures carried out. 3. Evidence of the application of communications, team working and quality awareness in a horticultural environment. 	
Skills Demonstration	80%
<p>The learner will complete two skills demonstrations at appropriate intervals during the programme. Evidence of the Skills Demonstrations must be included in the assessment portfolio.</p> <p style="text-align: center;">Demonstration 1 - Preparing a tray of cuttings (30 – 45 minutes approximately)</p> <ol style="list-style-type: none"> 1. Prepare for propagation a tray of 12 to 16 plant cuttings using a suitable growing medium and using a rooting hormone. <p style="text-align: center;">Demonstration 2 – Sowing seeds (30 – 45 minutes approximately)</p> <ol style="list-style-type: none"> 2. Carry out the correct procedure in sowing at least two trays of seeds. <p>An assignment sheet indicating the names of the seed, both common names and scientific names, the appropriate times for the sowing of the seeds, expected germination period and any specific environmental conditions required for successful germination must accompany the completed task.</p>	

11.b Assessment - General Information – Plant Propagation 3N0569

All instructions for the learner must be clearly outlined in an Assessment Brief.

Mapping Each Learning Outcome to an Assessment Technique

Learning Outcome	Assessment Technique
List the tools, materials and equipment required to produce a range of plants, using common propagation techniques	Collection of Work
Explain the effect of temperature, water and fertility on the life cycle of a plant	Collection of Work
Select suitable examples of a range of cuttings including softwoods, hardwood, semi-hardwood, herbaceous, nodal, internodal, heeled, mallet, leaf and root.	Skills demonstration
Insert cuttings in a rooting medium using appropriate techniques and materials	Skills demonstration
Demonstrate the correct technique of layering and division	Skills demonstration
Sow a selection of seeds using appropriate techniques and materials, indoors or outdoors, to include annuals, biennials, perennials, vegetables and grass	Skills demonstration
Apply appropriate health, safety and personal hygiene procedures when propagating plants	Skills demonstration
Demonstrate the application of communications, team working and quality awareness in a horticultural environment.	Collection of Work

Grading

At Level 3 a Learner is graded as Successful or Referred.

Successful means that ALL the learning outcomes from the Component Specification have been demonstrated to an appropriate standard in the Learner's portfolio of assessment.

Referred means that the portfolio of assessment needs further work by the Learner before s/he can demonstrate the standard and achieve certification from QQI.


QQI
Level 3 Plant Propagation 3N0569
Learner Marking Sheet

Learner's Name: _____

Learner's PPSN: _____

Learners will be able to:	Evidence of the following is included in the assessment portfolio:	✓ If present in portfolio	Please indicate where evidence is to be found
1. List the tools, materials and equipment required to produce a range of plants, using common propagation techniques	List names and functions of tools and equipment required to carry out basic plant propagation techniques, e.g. secateurs, knife, spray bottle, plant propagators, trowel, growing media, rooting hormones, etc.		
2. Explain the effect of temperature, water and fertility on the life cycle of a plant	Outline the life cycle of at least two of the following: half-hardy annual, biennial, flowering plants, shrubs, vegetables and bulbs Describe the environmental requirements of a plant throughout its life cycle in terms of temperature levels, availability of water, nutrients and oxygen		
3. Select suitable examples of a range of cuttings including softwoods, hardwood, semi-hardwood, herbaceous, nodal, intermodal, heeled, mallet, leaf and root	Collect and prepare for propagation a number of suitable examples from the following range of cuttings: Softwoods, Hardwoods, Semi hardwood, Herbaceous, Nodal, Internodal, Heeled, Mallet, Leaf, Root		
4. Insert cuttings in a rooting medium using appropriate techniques and materials	Carry out the correct insertion methods of a variety of cuttings into media suitable for successful propagation, with particular attention being paid to depth of insertion		
5. Demonstrate the correct technique	Carry out the layering of a woody shrub (e.g. Forsythia) using branch		

<p>of layering and division</p>	<p>wounding and dusting with a rooting powder followed by burying and anchoring</p> <p>Carry out the correct air layering procedure using a suitable plant (e.g. rubber plant): making the cut, holding it open, dusting with rooting powder, wrapping the wound with plastic and sealing the package. Carry out a simple plant division propagation technique by dividing a plant and planting on each division into a suitable medium</p>		
<p>6. Sow a selection of seeds using appropriate techniques and materials, indoors or outdoors, to include annuals, biennials, perennials, vegetables and grass</p>	<p>Sow a selection of seeds including half-hardy annuals, biennials, perennials, vegetables and grass, following instructions on seed packets and sowing indoors or outdoors as appropriate. Keep a diary of development of the plants</p>		
<p>7. Apply appropriate health, safety and personal hygiene procedures when propagating plants</p>	<p>Identify and discuss the effects of exposure to a range of common hazards Follow instructions on containers and follow correct storage and disposal procedures for any chemicals used Use protective clothing and equipment when necessary Handle and use tools and machinery safely</p>		
<p>8. Demonstrate the application of communications, team working and quality awareness in a horticultural environment</p>	<p>Demonstrate co-operation and personal responsibility Work to agreed deadlines Follow instructions Express ideas, opinions and concerns appropriately</p>		

This is to state that the evidence presented in the attached portfolio is complete and is the work of the named learner

Learner's Signature: _____

Date: _____

Assessor's Signature: _____

Date: _____

External Authenticator's Signature: _____

Date: _____