



National Unit Specification: general information

UNIT Production and Care of Young Trees (SCQF level 5)

CODE F6AR 11

SUMMARY

This Unit allows candidates to develop some of the basic knowledge and skills in relation to tree production from seeds and cuttings, tree on-growing and planting out together with the establishment, care and maintenance of young trees.

The Unit is suitable for candidates who want to develop or further develop their skills in forest and woodland tree production and husbandry.

OUTCOMES

- 1 Propagate woodland and forest trees.
- 2 Conduct tree on-growing and planting out operations.
- 3 Conduct establishment, care and maintenance operations on young trees.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, it would be beneficial if candidates had previous experience and knowledge of rural land use, forests and forestry practices. This may be evidenced by possession of the following, or equivalent:

- ◆ Rural Skills or component Units of this award such as *Crop Production: an Introduction* and *Soft Landscaping: an Introduction*

CREDIT VALUE

1 credit at SCQF level 5 (6 SCQF credit points at SCQF level 5*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Administrative Information

Superclass: SG

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National Unit Specification: general information (cont)

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CORE SKILLS

There is no automatic certification of Core Skills in this Unit.

The Unit provides opportunities for candidates to develop aspects of the following Core Skills:

- ◆ *Communication* (SCQF level 5)
- ◆ *Problem Solving* (SCQF level 5)
- ◆ *Working with Others* (SCQF level 5)

These opportunities are highlighted in the Support Notes of this Unit Specification.

National Unit Specification: statement of standards

UNIT Production and Care of Young Trees (SCQF level 5)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME 1

Propagate woodland and forest trees.

Performance Criteria

- (a) Collect and store tree seeds according to accepted protocols for the given species.
- (b) Prepare given seed samples for the breaking of dormancy in preparation for germination.
- (c) Prepare a seedbed and sow the seeds according to the requirements of the given species.
- (d) Prepare and strike softwood cuttings according to accepted protocols for the given species.
- (e) Prepare and strike hardwood cuttings according to accepted protocols for the given species.
- (f) Demonstrate safe working practices at all times.

OUTCOME 2

Conduct tree on-growing and planting out operations.

Performance Criteria

- (a) Carry out husbandry operations for container-grown and open-ground grown tree seedlings according to accepted procedures.
- (b) Transplant and line out nursery stock for on-growing according to accepted procedures.
- (c) Plant out container-grown tree stock according to accepted procedures.
- (d) Plant out bare-rooted tree stock according to accepted procedures.
- (e) Demonstrate safe working practices at all times.

OUTCOME 3

Conduct establishment, care and maintenance operations on young trees.

Performance Criteria

- (a) Protect young trees from weather and soil-related factors during establishment using techniques appropriate for the given trees and environmental conditions.
- (b) Protect young trees from pests by physical methods appropriate for the given trees and local factors.
- (c) Protect young trees from competing vegetation at planting out and during establishment according to accepted procedures.
- (d) Demonstrate safe working practices at all times.

National Unit Specification: statement of standards (cont)

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EVIDENCE REQUIREMENTS FOR THIS UNIT

Performance evidence supported by assessor observation checklists is required to demonstrate that candidates have achieved all Outcomes and Performance Criteria. Evidence will be collected at appropriate points throughout the Unit.

To achieve Outcome 1, the candidate must:

- ◆ collect, prepare for storage and store in appropriate conditions one batch of tree seeds with conventional storage requirements
- ◆ collect and treat appropriately one batch of tree seeds with unconventional storage requirements
- ◆ prepare and treat one sample of tree seed for natural breaking of dormancy
- ◆ prepare and treat one sample of tree seed for artificial breaking of dormancy
- ◆ prepare a seedbed and sow one sample of tree seed according to the species requirements
- ◆ prepare and strike softwood cuttings according to accepted protocols for one given species
- ◆ prepare and strike hardwood cuttings according to accepted protocols for one given species

To achieve Outcome 2, the candidate must:

- ◆ undertake two husbandry operations for container-grown tree seedlings
- ◆ undertake two husbandry operations for open-ground grown tree seedlings
- ◆ transplant and line out twenty items of nursery stock for on-growing using appropriate size grading and spacing methods for the species involved
- ◆ plant out five container-grown trees according to accepted procedures to ensure maximum survival
- ◆ plant out ten bare-rooted trees according to accepted procedures to ensure maximum survival

To achieve Outcome 3, the candidate must:

- ◆ protect five young trees at planting from one soil-dependent factor
- ◆ protect five young trees at planting from exposure to wind, frost and potential damage from herbivores by staking and fitting tree tubes
- ◆ protect five young trees at planting from small mammal and rabbit damage by fitting spiral guards
- ◆ check ten trees that have been previously staked and fitted with tree tubes and make any required adjustments
- ◆ protect five young trees at planting from competing vegetation by installing mulch mats or equivalent
- ◆ remove competing vegetation from ten established young trees using hand tools

National Unit Specification: support notes

UNIT Production and Care of Young Trees (SCQF level 5)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This is an optional Unit in the NPA Rural Skills at SCQF level 5 but can also be taken on a stand alone basis.

The context for this Unit is the production, establishment and care of young trees as the prerequisite for mature trees, woodlands and forests of the UK landscape and the raw material for the timber production industry. The Unit should provide information and practical skills which form a sound basis for further silvicultural study and/or practice.

It is important that the practical aspects of the learning takes place involving the production and care of young trees in either a work setting or simulated work setting. Partnerships with Land-based colleges, training providers or employers are likely to provide the most appropriate settings.

It is important that the deployment of appropriate learning environments is preceded by a valid risk assessment, particularly identifying any protective personal equipment which the candidate may require.

Suggested topics and themes are shown below:

Outcome 1 develops an awareness of tree propagation methods. Consideration of sexual propagation should begin at the seed production stage. Ripe seed should be collected, examined and classified according to their subsequent treatment. The emphasis should be on conventional tree seeds which require drying, cleaning and storing in cool, dry conditions. Notable exceptions to the conventional protocol, including seeds which must be sown fresh, without drying, should be included. Dormancy should be included by considering how to break dormancy by allowing exposure of moist seeds to frost or, artificially, by storage of moist seeds at 4°C in a refrigerator. An awareness of the importance of good seedbed preparation, sowing density and depth of sowing should be developed. Alternative methods such as the use of seed trays and root trainers could be included. Vegetative propagation techniques to be developed should be limited to softwood and hardwood cuttings. The importance of the state of the material used to produce cuttings and the environmental conditions required for good root development should be emphasised. Alternative methods such as layering and grafting could be mentioned but it is not necessary for these techniques to be developed by the learners.

In Outcome 2, the techniques of watering, ensuring adequate illumination and hardening off should be practised with container-grown tree seedlings. Open-ground grown seedlings should be watered, weeded, thinned out and protected from extreme weather. Transplanting and lining out in prepared nursery beds should take account of species, growth habit and size when deciding on spacing. The good practice of grading transplants according to size should be developed. The relatively weather and seasonal independence of container-grown planting out should be considered together with the practical aspects of the task. The storage and protection of bare rooted young trees should be considered together with the practical aspects of this task

National Unit Specification: support notes (cont)

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In Outcome 3, the planting and post-planting operations in the permanent growing location are considered. Soil-dependent factors include waterlogging, drying out, nutrient levels and pH. Weather related factors include exposure to wind, rain and extremes of temperature. Protection from deer and other large herbivores is achieved using stakes and tree tubes. Smaller mammals can be excluded using other physical barriers such as plastic spiral guards. The importance of controlling competing vegetation should be emphasised and the different methods available depending on the age and size of the young trees considered. Mulch mats, or other mulching agents, and cutting back vegetation using hand tools should be used for newly planted and established young trees, respectively. The multiple functions of tree tubes should be apparent, particularly for broadleaves. Regular maintenance checks should be practised during the establishment phase and appropriate action taken, for example, by replacing tree tubes with tree ties.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

It is vital that this Unit is delivered in a very practical way with all operations being explained during practical demonstrations. These demonstrations should concentrate on the techniques involved, the materials and conditions required and the species that can be dealt with by each technique and modified technique, as appropriate. This should be followed by extensive opportunities for the development and perfecting of the required skills. Explanations could be supplemented by internet and Virtual Learning Environment (VLE) resources. Group discussions and teamwork activities will play an important part in the delivery of the Unit.

Learning and teaching for Outcome 1 and part of Outcome 2 will be facilitated by access to a horticultural Unit with propagation and nursery facilities. The remainder of Outcome 2 and Outcome 3 will require access to a site for planting trees and maintaining previously planted trees.

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

This Unit could provide opportunities for the development of *Communications*, *Problem Solving* and *Working with Others* at SCQF level 5 through many of the integral practical activities.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Practical exercises for all of the Outcomes.

For all Outcomes of this Unit, observation checklists and structured recording sheets should be used. Candidates should use the structured recording sheets to ensure that all key information is included and that the reports are restricted in length. Although teamwork could be involved in many of the activities, the reports must be the work of the individual candidate.

National Unit Specification: support notes (cont)

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Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

DISABLED CANDIDATES AND/OR THOSE WITH ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements