

Next Generation Higher National Unit Specification

Specialised Plant Production (SCQF level 8)

Unit code: J7B5 48
SCQF level: 8 (16 SCQF credit points)
Valid from: session 2023 to 2024

Prototype unit specification for use in pilot delivery only (version 1.0) August 2024

This unit specification provides detailed information about the unit to ensure consistent and transparent assessment year on year.

This unit specification is for teachers and lecturers and contains all the mandatory information required to deliver and assess the unit.

The information in this unit specification may be reproduced in support of SQA qualifications only on a non-commercial basis. If it is reproduced, SQA must be clearly acknowledged as the source. If it is to be reproduced for any other purpose, written permission must be obtained from permissions@sqa.org.uk.

This edition: August 2024 (version 1.0)

© Scottish Qualifications Authority 2024

Unit purpose

This unit provides learners with advanced practical propagation skills for a range of specialist plants in a global context. Learners concentrate on furthering their knowledge and identification of:

- ◆ plants
- ◆ groupings
- ◆ biomes
- ◆ associated morphological adaption to environmental conditions

During the unit, learners focus on applying practical and technical skills to propagate plants and maintain propagules to establishment or maturity. Highlighting sustainable practices where possible, the unit places an emphasis on techniques used in commercial and retail plant propagation, and in plant conservation.

Delivery of this unit could be integrated with Advanced Production Horticulture at SCQF level 8.

Before starting the unit, learners would benefit from having completed Production Horticulture at SCQF level 7 or equivalent.

You can integrate topics to suit your centre's facilities and resources.

On completion of the unit, and on achievement of the Higher National Diploma (HND) in Horticulture, learners can progress to the BSc in Horticulture or to employment opportunities in the horticulture industry.

Unit outcomes

Learners who complete this unit can:

- 1 identify a range of global plants and their relevant growing environments and biomes
- 2 demonstrate propagation techniques that are appropriate to the production of plants for retail and conservation purposes
- 3 manage and maintain propagules in appropriate growing systems or conditions to establishment or maturity

Evidence requirements

Learners must provide the following evidence:

Outcome 1

Learners should be able to identify a range of global plants using their botanical names, and their relevant growing environments and/or associated biomes.

Examples of plant groupings include, but are not limited to:

- ◆ arid
- ◆ succulent
- ◆ tropical
- ◆ sub-tropical
- ◆ epiphytic
- ◆ ferns and cryptogams
- ◆ alpine
- ◆ aquatic
- ◆ carnivorous

Examples of biomes include, but are not limited to:

- ◆ aquatic
- ◆ grassland
- ◆ forest (including rain, boreal and cloud)
- ◆ desert
- ◆ tundra

Learners can generate evidence using restricted-response questions, profiles, case studies, or an e-portfolio.

Outcome 2

Learners should be able to demonstrate proficiently a minimum of three advanced propagation techniques appropriate to the production of specialist plants, and manage and maintain propagules in appropriate growing systems. Suggested techniques include:

- ◆ using cuttings
- ◆ layering, air-layering
- ◆ grafting
- ◆ micropropagation
- ◆ micrografting
- ◆ spore propagation

Outcome 3

Working on their own or as part of a group, learners should manage and maintain specialised crop propagules in an appropriate growing environment or system, until the plants are established or mature. They should do this in either a retail or conservation context.

Suggested activities include:

- ◆ acclimatising, transplanting, potting on
- ◆ pinching out, creation of plant architecture
- ◆ applying and monitoring of crop nutrition, irrigation, light, humidity
- ◆ managing pests and pathogens
- ◆ maintaining sanitation and biosecurity

Retail context

You should detail the current production practices of the crop in the context of national and/or international markets, including an overview of end-of-production to sale-ready steps, and the crop's main destinations. Discussions should include any sustainability considerations for current production practices, and recommendations for improvement where appropriate.

Conservation context

Learners should provide an overview of the status of the plant in its natural (native) environment. This overview should highlight issues and concerns with the current population status and production methods, and justify or propose impacts that production of the plant could have on future plant populations. Learners' evidence should include in-situ and ex-situ production practices where appropriate.

Learners can generate evidence in the form of a written document or e-portfolio.

Knowledge and skills

The following table shows the knowledge and skills covered by the unit outcomes:

Knowledge	Skills
<p>Outcome 1 Learners should understand:</p> <ul style="list-style-type: none"> ◆ specialist plant groupings, biomes, and growing environments ◆ physical adaptations in plants 	<p>Outcome 1 Learners can:</p> <ul style="list-style-type: none"> ◆ identify a range of global plants using relevant binomial nomenclature ◆ identify a range of biomes and different growing environments ◆ describe physical adaptations in plants
<p>Outcome 2 Learners should understand:</p> <ul style="list-style-type: none"> ◆ the application and use of a range of plant propagation techniques ◆ plant physiology and response to wounding and stress ◆ the importance of health and safety considerations in relation to plant propagation ◆ the importance of sanitation and abiotic practices in relation to plant propagation 	<p>Outcome 2 Learners can:</p> <ul style="list-style-type: none"> ◆ identify suitable propagation techniques ◆ demonstrate a minimum of three different plant propagation techniques ◆ use propagation tools safely ◆ follow propagation steps ◆ comply with official health and safety, COSHH (Control of Substances Hazardous to Health) and biosecurity protocols
<p>Outcome 3 Learners should understand:</p> <ul style="list-style-type: none"> ◆ sustainability and environmental considerations in plant production ◆ the different approaches needed when producing plants for retail and conservation purposes ◆ health and safety considerations and awareness ◆ identification and planning of relevant timelines for growth stages ◆ crop management and maintenance practices, to appropriate industry and conservation standards ◆ how to apply and monitor crop growing conditions 	<p>Outcome 3 Learners can:</p> <ul style="list-style-type: none"> ◆ identify suitable materials, methods, and resources required for plant production ◆ identify and discuss relevant sustainability considerations for the chosen crop or related biome ◆ manage and maintain propagules in appropriate growing environments ◆ monitor and maintain crop environmental conditions ◆ produce a Gantt chart to detail timings relevant to the production and maintenance of propagules

Meta-skills

Throughout the unit, learners develop meta-skills to enhance their employability in the horticulture sector.

Self-management

This meta-skill includes:

- ◆ focusing: studying and carrying out complex plant production techniques; developing a detailed improved crop management practice (ICMP)
- ◆ integrity: taking responsibility for own part in group work; modelling best practice in lab work
- ◆ initiative: anticipating propagation issues and solutions

Social intelligence

This meta-skill includes:

- ◆ communicating: taking an active part in class discussions
- ◆ collaborating: sharing learning

Innovation

This meta-skill includes:

- ◆ curiosity: looking beyond set tasks; asking lecturers and peers questions
- ◆ sense-making: linking learning from different areas of this unit and others; drawing conclusions
- ◆ critical thinking: questioning outcomes and results; designing solutions to problems as they occur

Literacies

Learners develop core skills in the following literacies:

Communication

Learners have multiple opportunities to develop their communication skills in the unit, during group work, class discussion, and when they demonstrate and present their knowledge.

Digital

Learners develop digital skills and computer literacy by using digital software to manage, plan and report on their research, findings and assignments.

Delivery of unit

We recommend that you deliver the unit according to your centre's facilities and resources, drawing on areas of centre expertise. You should make use of industry contacts and, where possible, organise site visits to relevant growers and botanic gardens to help learners contextualise their understanding of the industry.

You can integrate delivery of aspects of the unit with Advanced Production Horticulture at SCQF level 8 and Sustainability and Innovation at SCQF level 8.

The notional design length for the unit is 80 hours. However, the amount of time you allocate to each outcome is at your discretion.

We suggest the following distribution of time, including assessment:

- Outcome 1** — identify a range of global plants and their relevant growing environments and biomes
(10 hours)
- Outcome 2** — demonstrate propagation techniques that are appropriate to the production of plants for retail and conservation purposes
(30 hours)
- Outcome 3** — manage and maintain propagules in appropriate growing systems or conditions to establishment or maturity
(40 hours)

Additional guidance

The guidance in this section is not mandatory.

We recommend that centres use digital technologies, such as word-processing, spreadsheet and presentation software, as well as any appropriate e-tools, including e-portfolios to enable authentic assessment. You should integrate digital software to report findings and use a range of software applications and platforms for blended delivery where possible.

Content and context for this unit

Outcome 1

We recommend that you use live specimen material where possible to strengthen learners' understanding of adaptations and plant morphology. Visits to botanical gardens or other relevant plant collections help to contextualise biomes and enhance learning.

Outcome 2

We recommend that you use live plant specimens and physical growing environments to contextualise the production of crops and embed direct application of maintenance skills. Learners would benefit considerably from visits to relevant sites to supplement their learning.

Outcome 3

We recommend that, where possible, you encourage learners to engage with living specimens for the management and maintenance of crops, to create an authentic assessment environment, and to put in place a relevant risk assessment for any practical activities. Where possible, you should embed sustainable practices.

Equality and inclusion

This unit is designed to be as fair and as accessible as possible with no unnecessary barriers to learning or assessment.

You should take into account the needs of individual learners when planning learning experiences, selecting assessment methods or considering alternative evidence.

Guidance on assessment arrangements for disabled learners and/or those with additional support needs is available on the assessment arrangements web page:

www.sqa.org.uk/assessmentarrangements.

Information for learners

Specialised Plant Propagation (SCQF level 8)

This information explains:

- ◆ what the unit is about
- ◆ what you should know or be able to do before you start
- ◆ what you need to do during the unit
- ◆ opportunities for further learning and employment

Unit information

This unit gives you the knowledge and skills you need to cultivate specialist global plant groupings. You learn about and identify specialist plant groupings, and understand how to apply practical and technical skills to carry out the main stages of production, from propagation to maturity and sale stage, in the retail and conservation sectors.

As you study the unit, you learn to:

- 1 identify a range of global plants and their relevant growing environments and biomes
- 2 demonstrate propagation techniques that are appropriate to the production of plants for retail and conservation purposes
- 3 manage and maintain propagules in appropriate growing systems or conditions to establishment or maturity

Before starting the unit, learners would benefit from having completed Production Horticulture at SCQF level 7 or equivalent.

You should actively participate with learning outcome achievement and class activities.

Throughout the unit, you have the opportunity to develop meta-skills covering self-management, social intelligence, and innovation.

On completion of the unit, and on achievement of the Higher National Diploma (HND) in Horticulture, you can progress to the BSc in Horticulture. Alternatively, you may wish to apply directly to the horticulture industry and related work placements.

Administrative information

Published: August 2024 (version 1.0)

Superclass: SA

History of changes

Version	Description of change	Date

Note: please check [SQA's website](#) to ensure you are using the most up-to-date version of this document.