



## Higher National Unit specification

### General information for centres

**Unit title:** Nursery Production

**Unit code:** F1JF 34

**Unit purpose:** This Unit aims to introduce the candidate to the production of ornamental plants. Candidates will gain an understanding of the commercial crops grown in the UK, their relative importance and reasons for their location in different geographical areas. Candidates will also gain an understanding of the importance of nursery production for botanical collections and/or conservation purposes. The Unit will introduce candidates to production planning and the practical implementation of a production plan for a container grown crop.

On completion of the Unit the candidate should be able to:

- 1 Evaluate economic and geographic factors influencing ornamental plant production.
- 2 Produce a cropping plan for a given ornamental crop or group of plants.
- 3 Implement the cropping plan under supervision.

**Credit points and level:** 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7\*)

*\*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.*

**Recommended prior knowledge and skills:** Prior knowledge or skills are not essential for this Unit. However, it would be beneficial for candidates to have had practical experience in plant propagation and growing on of plants. This could be through work experience or the completion of or parallel study of Units like *Horticulture Practices*, *Plant Recognition*, *Plant Protection* and *Soil Management*.

**Core Skills:** There are opportunities to develop the Core Skills of *Communication* and *Problem Solving* at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

**Context for delivery:** If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

## General information for centres (cont)

**Assessment:** The assessment of this Unit can reflect the teaching approach taken by a particular centre. Outcomes 1 and 2 could be assessed together, for example in a written report. This would be based on compiling a production plan for a given ornamental crop and showing an understanding of how the crop compares with other sectors of ornamental plant production. Outcome 3 should be assessed using check lists for the implementation of the cropping plan from propagation, growing on and crop care. Alternatively, a sequential approach to assessment could be taken, assessing the Outcomes in the order written.

## **Higher National Unit specification: statement of standards**

**Unit title:** Nursery Production

**Unit code:** F1JF 34

The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

### **Outcome 1**

Evaluate economic and geographic factors influencing ornamental plant production

#### **Knowledge and/or Skills**

- ◆ Geographic, climatic and topographic factors
- ◆ Economic factors
- ◆ Gross margin analysis

#### **Evidence Requirements**

Candidates will need evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ explain the importance of nursery production within horticulture
- ◆ identify and evaluate the various factors influencing nursery plant production

#### **Assessment Guidelines**

Outcome 1 could be assessed as part of a written assignment identifying geographic, climatic and topographic factors influencing the location of the production of a specific crop in the UK and comparing the economic factors and gross margin of the given crop with other ornamental crops grown in the UK. Alternatively this Outcome could be assessed by a short answer written or oral assessment.

### **Outcome 2**

Produce a cropping plan for a given ornamental crop or group of plants

#### **Knowledge and/or Skills**

- ◆ Identify a range of species and cultivars commonly grown for the given ornamental crop
- ◆ Prepare a cropping plan for the given ornamental crop to be grown in containers

## **Higher National Unit specification: statement of standards (cont)**

**Unit title:** Nursery Production

### **Evidence Requirements**

Candidates will need evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ identifying a range of species and cultivars
- ◆ preparing a production plan for the given container grown crop

### **Assessment Guidelines**

Plant knowledge for Outcome 2 could be assessed by a series of plant/materials identification tests, or by the production of a 'portfolio' that contains information/images of a range of nursery plants. A production plan for the given crop could be produced that will include explanations for the timings for production, reasons for method(s) of propagation selected and reasons for methods of subsequent production to sale that are selected.

## **Outcome 3**

Implement the cropping plan under supervision

### **Knowledge and/or Skills**

- ◆ Propagation techniques
- ◆ Growing-on and crop manipulation practices and techniques

### **Evidence Requirements**

Candidates will need evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ appropriately propagate the plants within the cropping plan
- ◆ carry out cultural practices required to grow on the crop to an acceptable standard

### **Assessment Guidelines**

Outcome 3 could be assessed as a series of practical assessments relevant to the crop being grown. Checklists could be used to ensure the candidates work is to a standard required to produce the plant quality required for the crop.

## Administrative Information

**Unit code:** F1JF 34  
**Unit title:** Nursery Production  
**Superclass category:** SD  
**Original date of publication:** August 2007  
**Version:** 02 (November 2008)

### History of changes:

Version	Description of change	Date
02	Minor amendment made to Unit title.	21/11/08

**Source:** SQA

© Scottish Qualifications Authority 2007

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Customer Contact Centre for further details, telephone 0845 279 1000.

## **Higher National Unit specification: support notes**

### **Unit title: Nursery Production**

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**

The Unit introduces candidates to the range of ornamental plants produced in the UK. A specific ornamental crop should be selected as a model for crop planning but the importance of the selected crop should be explained by putting it into the context of UK ornamental plant production as a whole. The range of ornamental crops from which the model will be selected and compared should include: hardy ornamental nursery stock, bedding plants, pot plants and cut flower crops. It is suggested that a relatively short term crop is selected so that candidates can implement a production plan fully. The outlets for the use/sale of these plants should be identified: retail sales through a range of outlets, landscaping (exterior and interior), conservation programmes and botanical collections for example. The influences on the siting of nurseries should be discussed: geographic influences, for example, centres of population; climatic influences, for example, light levels; and topographic influences, for example, aspect and altitude.

The significance, in terms of financial turnover, size of workforce and area, of the different sectors of ornamental plant production should be compared. Production in the UK could be compared with that of Europe. A simple gross margin analysis of the crop enterprise selected would illustrate clearly costs of production and financial returns. Variable costs and fixed costs should be mentioned.

Candidates should be introduced to the main species for their selected crop and to a selection of cultivars commonly used. An explanation of why the given plants are commonly grown should be given. Candidates should use taxonomic names as well as common names.

Options for propagation should be discussed with the candidates for example use of seed or vegetative propagation, selection of a vegetative propagation method (eg cuttings, grafting and division) and the system that could be used (eg mist or polythene for cuttings) should be discussed and advantages/disadvantages evaluated. The use of mechanisation (eg seed sowing machines) should also be introduced to the candidates. The method of propagation to be used for the crop plan should reflect the facilities available to the candidate. Visits to nurseries could be made to see the application of other techniques, especially mechanisation.

Options for growing on the crop should be discussed with the candidates: growing media, irrigation, pest and disease control, pruning, growth regulators etc. Again, the final selection for growing on the crop will depend on facilities available to the candidate and visits to nurseries could be made to show the application of other production techniques and mechanisation.

### **Guidance on the delivery and assessment of this Unit**

This Unit is likely to form part of a Group Award, which is primarily designed to provide candidates with technical or professional knowledge and skills related to occupations in nursery production, amenity horticulture, botanic garden management, or garden/plant conservation.

## Higher National Unit specification: support notes (cont)

### Unit title: Nursery Production

A series of lectures/seminars should introduce candidates to ornamental plant production in the UK; the size of the market, influences on the location of nurseries and methods of plant production. Visits to a range of nurseries to observe production systems, machinery and technology in operation could be used to show candidates the most up to date methods of production. The candidates should develop the production plan for the given crop from these classes. Practical classes will enable the candidate to implement the production plan and improve their basic propagation and plant care skills learnt elsewhere.

Suitable approaches to generating evidence may include supplementing a student-centred written assignment with an oral explanation by the candidate.

For the teaching of the **Outcome 1** <http://statistics.defra.gov.uk/esg/> can be used to provide production statistics for horticulture.

For the teaching of **Outcome 2** the following references are recommended:

- ◆ Armitage, A.M. (1994), '*Ornamental Bedding Plants*' CAB International
- ◆ Eames, A. (1994), '*Commercial Bedding Plant Production*' (Grower Guide 1), Grower Books
- ◆ Hessayon, D.G. (2005), '*The Bedding Plant Expert*'
- ◆ '*Practical Woody Plant Propagation for Nursery Growers*', Bruce Macdonald
- ◆ '*Grower Manual 1: Nursery Stock Manual*', Keith Lamb, James Kelly, Peter Bowvrick.
- ◆ The International Plant Propagators Society Combined Proceedings
- ◆ Ball Redbook, '*Greenhouse Growing*'
- ◆ HDC leaflets
- ◆ Plus specialist publications for the crop selected

For the teaching of **Outcome 3** candidates should carry out the production of the crop using practices as suitable to commercial practices as possible given the facilities available. They should gain an appreciation of the importance of work organisation and working to a consistent and acceptable standard of quality.

### *Opportunities for developing Core Skills*

There are opportunities to develop the Core Skills of *Communication* and *Problem Solving* at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

### Open learning

Elements of this Unit could be delivered by distance learning depending on the workplace of the candidate and the standard of training of the staff. It is highly likely that the student would need to attend the centre for the range of facilities and plant collections to meet the requirements of the Unit.

## **Higher National Unit specification: support notes (cont)**

**Unit title:** Nursery Production

### **Candidates with disabilities and/or additional support needs**

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* ([www.sqa.org.uk](http://www.sqa.org.uk)).

## **General information for candidates**

### **Unit title:** Nursery Production

This Unit aims to introduce the candidate to the production of ornamental plants. Candidates will gain an understanding of the commercial crops grown in the UK, their relative importance and reasons for their location in different geographical areas. Candidates will also gain an understanding of the importance of nursery production for botanical collections and/or conservation purposes. The Unit will introduce candidates to production planning and the practical implementation of a production plan for a pot grown crop.

In Outcome 1 the candidate will evaluate the economic and geographic factors influencing ornamental plant production in the UK and prepare simple gross margin analysis. Candidates will gain an understanding of the factors that affect the location of ornamental plant production within the UK, the comparative sizes of the different ornamental crops and learn how to carry out gross margin analysis. In addition the UK ornamental plant production will be put into the context of ornamental plant production in the EU as a whole. The production of plants for retail, landscape, conservation and plant collection purposes will be discussed.

In Outcome 2 the candidate will produce a cropping plan for a given ornamental crop or group of plants. This will include crop timing to ensure plants are at the correct stage for sale or planting when required, selection of the propagation and growing on methods require to produce crops of the required quality. In addition the candidate will learn to identify a selection of the major species and cultivars grown for the given crop.

In Outcome 3 the candidate will assist with the implementation of the cropping plan under supervision. In addition visits to growers will be arranged to see current commercial crop production practices, especially mechanisation.