



National Unit specification: general information

Unit title: Plant Production for Commercial Purposes (SCQF level 4)

Unit code: H1XA 10

Superclass: SD

Publication date: July 2012

Source: Scottish Qualifications Authority

Version: 01

Summary

This Unit introduces the candidate to the skills and knowledge required to produce plants commercially. This will include developing an understanding of production methods, growing, maintaining and harvesting a commercial crop.

This Unit is aimed at candidates with little or no experience of commercial plant production from 16+ to mature learners. It is an optional Unit in the National Certificate in An Introduction to Horticulture at SCQF level 4. It is also suitable for use as a freestanding Unit.

Outcomes

- 1 Outline the main methods of commercial plant production.
- 2 Assist with growing a commercial crop.
- 3 Assist in maintaining a commercial crop.
- 4 Assist with harvesting and preparing a commercial crop.

Recommended entry

Entry is at the discretion of the centre. Learners doing this Unit do not need prior knowledge or experience of Horticulture. However, a demonstrated enthusiasm for working outdoors using practical horticultural skills would be an advantage.

Credit points and level

1 National Unit credit(s) at SCQF level 4: (6 SCQF credit points at SCQF level 4*)

**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.*

General information (cont)

Unit title: Plant Production for Commercial Purposes (SCQF level 4)

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes of this Unit specification.

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

National Unit specification: statement of standards

Unit title: Plant Production for Commercial Purposes (SCQF Level 4)

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

Outline the main methods of commercial plant production.

Performance Criteria

- (a) Identify a range of plants suitable for commercial production.
- (b) Identify and describe the use of tools, materials and equipment used in commercial plant production.
- (c) Describe a range of plant production methods.

Outcome 2

Assist with growing a commercial crop.

Performance Criteria

- (a) Assist in choosing a suitable crop for commercial production.
- (b) Select a plant production method appropriate to the chosen crop.
- (c) Assist in applying the selected production method to grow the chosen crop.

Outcome 3

Assist in maintaining a commercial crop.

Performance Criteria

- (a) Select appropriate tools, materials and equipment for the maintenance of the chosen commercial crop.
- (b) Assist with the application of a range of cultural techniques to promote the crop growth.
- (c) Adopt safe working practices at all times.

Outcome 4

Assist with harvesting and preparing a commercial crop.

Performance Criteria

- (a) Select appropriate plants for harvesting.
- (b) Assist with harvesting selected plants.
- (c) Assist with packaging selected plants.

National Unit specification: statement of standards (cont)

Unit title: Plant Production for Commercial Purposes (SCQF level 4)

Evidence Requirements for this Unit

Oral/written and performance evidence is required to demonstrate that the candidates have achieved all of the Outcomes and Performance Criteria. All evidence must be generated under open-book supervised conditions with strict adherence to health and safety regulations at all times during practical activities. Candidates must be shown correct and safe methods to handle, clean and store tools and the tutor must supervise to ensure that safe working practices are adopted at all times. PPE must be worn when required for the activity.

In Outcome 1 candidates must provide evidence which includes:

Identification of plants suitable for commercial production, including: annuals, perennials, trees and shrubs.

Identification of tools, materials and equipment, commonly used in commercial plant production and a description of their use. At least six items should be identified.

A description of the methods of commercial plant production to include:

- ◆ seed or vegetative propagation
- ◆ transplanting into suitable growing media
- ◆ growing on which includes maintenance such as watering, feeding, weeding, plant support, protection against pests and diseases
- ◆ harvesting and preparation of selected crop

In Outcome 2 candidates must provide evidence which includes:

- ◆ selection of one commercial crop with reasons for choice
- ◆ research into and selection of a production method suitable for the selected commercial crop
- ◆ assisting in the application of the selected method of plant production to grow the chosen crop, to include propagating plants from seeds or cuttings or growing on of plug plants, rooted cuttings or liners using either plant packs, pots or growing in open ground

In Outcome 3 candidates must provide evidence which includes:

- ◆ the selection of appropriate tools, materials and equipment for maintaining the selected crop.
- ◆ assistance with watering, feeding, weeding, pruning or deadheading, as appropriate to the chosen commercial crop
- ◆ the completion of all activities safely and in accordance with health and safety guidelines including wearing appropriate PPE

National Unit specification: statement of standards (cont)

Unit title: Plant Production for Commercial Purposes (SCQF level 4)

In Outcome 4 candidates must provide evidence to include:

- ◆ selection of appropriate plants for harvesting according to their size, health, aesthetics and readiness for harvesting
- ◆ harvesting plants and storage in trays, or a plant trolley or in a cold store
- ◆ packaging of selected plants including labelling, pricing, cellophane wrapper (where appropriate) or placing into trays/boxes or arranging into bundles, eg for cut flowers

National Unit specification: support notes

Unit title: Plant Production for Commercial purposes (SCQF level 4)

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 Unit is aligned to the following LANTRA National Occupational Standards (NOS):

- CU61 Assist with planting and establishing plants
- CU62 Assist with maintaining plants
- CU63 Assist with the vegetative propagation of plants
- CU64 Assist with the propagation of plants from seeds
- CU70 Assist with identifying the presence of, and controlling, common pests and diseases
- CU71 Assist with the preparation of the growing media

Performance evidence together with written and/or oral evidence is required to demonstrate that all Outcomes and Performance Criteria have been achieved. Evidence will be collected at appropriate points throughout the Unit.

Outcome 1

The candidate will show an understanding of the main plant production methods used in a commercial growing environment. Tools, materials and equipment will include propagation tools, secateurs, knives, dibbers, hand trowels, tampers, riddles, seed trays and pots, hormone rooting powder, compost, labels, canes and string, potting machines and propagators or misting benches. Candidates should be able to explain their uses.

The plant production methods could be represented from nurseries producing any one of the following: hardy nursery stock, bedding plants, perennials, trees, cut flowers, houseplants, aquatic plants, alpines and soft fruit plants.

Outcome 2

Candidates will be able to select and describe a suitable commercial crop from the range of plants described in Outcome 1 above. The candidate will have to research how to grow this crop by interpreting information on a seed packet, book or handout.

The candidate should be able to select a plant production method and apply it to the chosen crop by carrying out activities such as seed sowing, vegetative propagation techniques or growing from plug plants, liners or transplants.

National Unit specification: support notes (cont)

Unit title: Plant Production for Commercial purposes (SCQF level 4)

Outcome 3

Candidate will be able to select the appropriate tools, equipment and materials to carry out plant maintenance which may include some or all of the following: hoses, watering cans, sprinklers, granular and liquid feeds, and hand tools to carry out weeding such as hand forks.

Maintenance activities could include cultural methods such as weeding, watering, feeding, pruning, mulching, top dressing, using plant supports and training growth, providing shelter and plant protection or alternatively biological methods could be incorporated. At all times candidates must wear PPE required and adopt safe working practices.

Outcome 4

The candidate will be able to select and use an appropriate technique to harvest and prepare the chosen commercial crop. Harvesting activities could include selecting the appropriate plants to be harvested, including those large enough and/or in flower. Preparation activities could include plant labelling, packaging plants for transport or merchandising using cellophane, shuttle trays/boxes or placing plants onto trolleys.

Guidance on learning and teaching approaches for this Unit

The learning environment could be outdoors or indoors using a vegetable patch, raised beds or containers. An indoor environment could be a glasshouse or polytunnel and could involve the use of bed system such as raised beds or packs, trays and containers. Candidates could be paired up or work as part of a team to grow their crop but assessment will be carried out on an individual basis. The activities listed below would be supported by the lecturer/teacher demonstrating any practical tasks. Knowledge and understanding should be supported by notes or handouts/visual aids. It may be possible to integrate many of the activities below in order to achieve this Unit more holistically.

Outcome 1

- ◆ To provide candidates with an understanding of the main plant production methods used in a commercial growing environment it would be advantageous to give them firsthand knowledge by organising a trip to a local nursery, or it may be possible to simulate the different stages of a plant production system through the use of resources such as a greenhouse or poly tunnel. Plant production could be for any of the following types of plants; hardy nursery stock, bedding plants, trees, perennials, cut flowers, houseplants, aquatic plants, alpiners and soft fruit plants.
- ◆ To support the written or oral assessment it may be possible to set an activity where the candidate illustrates the plant production stages of one particular crop using a series of diagrams or pictures in a poster format of A4 size or larger. This could be labelled to illustrate the different stages, such as sowing/vegetative propagation right through to potting up/transplanting and growing on in pots, packs or containers or in the open ground, with finally harvesting, labelling and packaging.

National Unit specification: support notes (cont.)

Unit title: Plant Production for Commercial Purposes (SCQF level 4)

Outcome 2

- ◆ In order to be able to apply this information to growing the crop, activities such as seed sowing or carrying out vegetative propagation of bedding plants, perennials, shrubs, herbs, alpines or trees could take place. Growing techniques could also include growing plants from plug plants, liners or transplants. For example plug plants can be used as a starting plant material for many types of plant production, eg bedding plants.

Outcome 3

- ◆ Maintenance activities could include weeding of pots or open ground plants using the appropriate tools such as hand forks or Dutch hoes. Watering using a hose and lance, sprinkler system, drip irrigation/seep hose, or watering can. Feeding could be achieved through using a liquid, powder or granular fertiliser watered onto the plant or spread as a top dressing. Pruning could comprise pinching out growing tips, deadheading or trimming plants to a shape. Mulching and top dressing could result in providing a cover layer of compost/fertiliser to potted or open ground plants/trees. Installing plant supports and training growth could involve using canes and garden twine, netting or wires to support plant growth, eg providing support for pot grown perennials. Providing shelter could include installing windbreaks/screens and using materials such as fine netting. Plant protection could involve insulating plants from frost using horticultural fleece or covered areas, protecting against pests and diseases using sticky traps, slug pellets, Bordeaux mixture, tar washes or netting.
- ◆ Candidates must be shown correct and safe methods to handle, clean and store tools and the tutor must supervise to ensure that safe working practices are adopted at all times. PPE must be worn at all times.

Outcome 4

- ◆ Harvesting activities could include selecting the appropriate plants to be harvested based on factors such as size, flowers/foilage, space in the pot, root bound pots, gauging if the plant or crop is fit for sale. Commercial preparation activities will include labelling and packaging. Candidates could be introduced to the different ways of packaging/transporting plants whether as bare root plants wrapped in plastic/hessian, shrink wrapping to insulate/conservate moisture or by using shuttle trays, pallets or Danish trolleys.

By adopting the above learning and teaching approaches and/or through the Outcomes and corresponding Evidence Requirements, the Unit should provide candidates with an opportunity to develop the following essential skills for life, learning and work:

Employability — this Unit provides transferable practical skills, which can be used in an employment situation.

Enterprise — this Unit has the potential for candidates to raise funds through plant sales for student funds, community projects or charity

National Unit specification: support notes (cont.)

Unit title: Plant Production for Commercial Purposes (SCQF level 4)

Citizenship — the Unit could provide opportunities to demonstrate citizenship skills if the Unit is delivered as part of a community project for a local school, hospice or charity. The candidate would also be gaining a greater understanding of the importance of waste reduction by everyone.

Sustainability — this Unit raises an awareness of sustainability issues such as the choice of growing media and its implications to the environment as well as the choice of plants to grow, eg native wildflowers versus non-native plants.

Guidance on approaches to assessment for this Unit

This Unit should be achieved as holistically as possible using a portfolio to record and build up evidence of the candidates' achievements through the use of a range of assessment recording methods. This can include the use of a dictaphone, photographic evidence, job log sheets, e-portfolio or blogging. The following assessment methods are therefore a guide:

Outcome 1	Written/oral project
Outcomes 2, 3 and 4	Observation checklist

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)*.

Opportunities for developing Core Skills

In this Unit candidates will develop skills and knowledge to produce commercial plant crops.

Candidates will:

- ◆ identify a range of plants suitable for commercial production
- ◆ describe the stages of plant production
- ◆ identify a selection of plant production methods
- ◆ assist in growing and harvesting a commercial crop

This means that as candidates are doing this Unit they will be developing aspects of the Core Skills of *Communication*, *Problem Solving* and *Working with Others*.

National Unit specification: support notes (cont)

Unit title: Plant Production for Commercial Purposes (SCQF level 4)

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

History of changes to Unit

Version	Description of change	Date

© Scottish Qualifications Authority 2012

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.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Business Development and Customer Support team, telephone 0303 333 0330.