

NextGen: HN unit specification

Advanced Production Horticulture (SCQF level 8)

Unit code: J VX4 48

SCQF level: 8 (24 SCQF credit points)

Valid from: August 2026

This unit specification provides detailed information about the unit to ensure consistent and transparent assessment year on year. It is for lecturers and assessors, and contains all the mandatory information you need to deliver and assess the unit.

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Unit purpose

This unit provides learners with advanced knowledge of production horticulture and emphasises the application of practical skills and crop-maintenance techniques. It champions authentic skills for industry, including:

- financial planning
- risk assessment
- managerial skills, such as digital skills for stock planning and crop management

As learners build their knowledge and application of UK law, and industry regulations and standards, they deepen their understanding of the responsibilities of crop production in commercial practice. Learners develop their knowledge and understanding of crop production, crop maintenance and pest control in relation to environmental responsibility, informed by UK law and standards for water, land, the natural environment and society.

On completing the unit and on achieving the HND, learners may be able to progress to degree programmes in horticulture. Alternatively, they may want to go directly into employment in the horticulture industry or related work placements.

Entry requirements

Entry to this unit is at your centre's discretion. Before starting the unit, learners would benefit from having a foundation knowledge of horticulture, ideally having completed Production Horticulture at SCQF level 7, on which this unit expands.

We also recommend that learners have completed one or more of the following:

- HNC Horticulture
- a horticultural qualification at SCQF level 7
- appropriate work experience in horticulture

Unit outcomes

1. evaluate sustainability and environmental implications of commercial horticultural crop production systems
2. produce a financially viable, integrated, crop management plan for a commercial horticultural crop production enterprise
3. demonstrate crop production techniques using a range of production systems

Evidence requirements

Outcome 1

Learners research current examples of commercial crop production systems and use them to evaluate the principles of sustainability, and environmental implications.

Learners must:

- evaluate environmental, social and economic factors that have an impact on crop productivity
- evaluate current levels of sustainable practice, and make recommendations for future improvements

Examples of protected production systems could include (but are not limited to):

- tomato, cucumber and pepper production
- bedding plants
- cut-leaf salad production
- container production of houseplants
- cut flowers (under cover)
- hydroponic systems, including vertical farming

Examples of field crops for comparison could include (but are not limited to):

- field-grown vegetables, such as leek, carrot, and cabbage
- hardy ornamental nursery stock
- soft fruit (field grown)

- top fruit (orchard)
- cut flowers (field grown)

At your centre's discretion, learners can provide their appraisal in various ways including as:

- an oral presentation, with accompanying infographics
- a podcast
- a blog
- a written document

Outcome 2

Learners must individually produce a financially viable, integrated, crop management plan for a commercial horticultural crop production enterprise.

It is at your centre's discretion if the crops selected are field grown, protected, or in a combination. The simulated platform should provide learners with specimen plants. We recommend site visits.

Learners can provide evidence using a range of digital software. It they must include:

- a Gantt chart that follows the growing seasons of the crops, including successional growing, where appropriate, to the point of crop harvest
- an industry-standard protocol for the production of the crops that includes:
 - detailed propagation requirements
 - growing environment suitable to production stage
 - production inputs and consumables
 - crop maintenance
 - plant growth regulation
 - integrated pest management
 - sustainable waste management
 - crop specification for point-of-sale
- a financial plan that is applicable to any current UK situation and is of best commercial standing and efficacy for a financial profit at that time

Outcome 3

Learners must demonstrate application of advanced crop production techniques in practice. They must use a range of production systems to propagate and maintain a minimum of two crop lines.

Examples of production systems could include:

- soil-based (conventional or organic)
- soilless systems (hydroponics aeroponics vertical farms)

Examples of advanced techniques could include:

- micro-propagation
- grafting
- layering
- pH and EC management in soilless systems
- digital environmental control management

Learners can demonstrate crop production techniques individually or in groups, with small group work being encouraged.

Learners must:

- apply and adhere to all or any points determined by the risk assessment and control of substances hazardous to health (COSHH) protocol
- correctly apply propagation techniques for best commercial practice
- prepare and maintain crops and growing facilities for best commercial practice
- harvest and/or grade crops, following best commercial industry standards and practices
- dispose of or clear all plant risings and growing materials, or media and chemicals, as required by UK law and guidelines, and best environmental practice

Knowledge and skills

Knowledge	Skills
Outcome 1 Learners should understand: • principles of sustainable horticultural production • environmental, social and economic factors affecting crop productivity • resource efficiency ○ water ○ energy ○ fertilisers ○ substrates • carbon footprint and environmental impact of production systems • current sustainability initiatives and industry standards • circular economy principles and waste-reduction strategies	Outcome 1 Learners can: • analyse sustainability performance of different crop-production systems • evaluate environmental, social and economic impacts • critically assess current practices • make evidence-based recommendations for improvement • present findings using appropriate industry formats

Knowledge	Skills
Outcome 2 Learners should understand: • integrated crop management (ICM) principles • crop production cycles and seasonal planning • propagation methods and establishment requirements • environmental control requirements for crop growth • plant nutrition, irrigation and growing media management • plant growth regulation techniques • integrated pest management (IPM) principles • sustainable waste management practices • crop quality specifications and market requirements • commercial budgeting and financial planning principles • labour, consumables and infrastructure costs	Outcome 2 Learners can: • develop a detailed crop production schedule • produce a Gantt chart aligned to growing cycles • produce a crop management and maintenance programme from propagation to point-of-sale • specify growing environments for each crop stage • select appropriate inputs and consumables • develop a strategy for sustainable implementation of IPM and waste management • specify crop quality standards for sale • calculate production costs and projected income

Knowledge	Skills
Outcome 3 Learners should understand: • advanced crop-production techniques appropriate to selected crops and production systems • propagation, crop establishment and maintenance requirements • environmental monitoring and control principles • crop nutrition, irrigation and growing media management • harvesting, grading and crop quality standards • health and safety, risk assessment and COSHH requirements • sustainable waste management and environmental good practice	Outcome 3 Learners can: • apply safe working practices in accordance with risk assessments and COSHH requirements • propagate and establish crops using appropriate commercial techniques • maintain crops and growing facilities to commercial standards • apply advanced crop production techniques appropriate to the production system • monitor and manage crop growing conditions • harvest and/or grade crops to industry standards • manage waste and growing materials in accordance with legislation and environmental best practice

Meta-skills

You must give learners opportunities to develop their meta-skills throughout this unit. We have suggested how to incorporate the most relevant ones into the unit content, but you may find other opportunities.

Self-management

This includes focusing, integrity, adapting and initiative. The most relevant are:

- adapting:
 - responding to any issues that arise during the crop production process
- initiative:
 - taking responsibility for growing crops

Social intelligence

This includes communicating, feeling, collaborating and leading. The most relevant are:

- communicating:
 - receiving and giving information
- collaborating:
 - working in groups with peers

Innovation

This includes curiosity, creativity, sense-making and critical thinking. The most relevant are:

- curiosity:
 - observing crop growth and applying judgement to any crop-management decisions
- critical thinking:
 - designing and implementing a crop-management plan

Literacies

This unit provides opportunities to develop the following literacies.

Numeracy

Learners develop their numeracy skills by carrying out a financial analysis of crop production using authentic assessments, and applying best financial practice to crop-production planning.

Communication

Learners enhance their communication skills by carrying out outcome 1, as well as participating in the implementation of the crop-management plan, and communicating health and safety, and risk assessment advice.

Digital

Learners improve their digital skills and computer literacy by using digital software to design a crop-management plan and report findings, where possible.

Learning for Sustainability

Throughout this unit, you should encourage learners to develop their skills, knowledge and understanding of sustainability.

This includes:

- a general understanding of social, economic and environmental sustainability
- a general understanding of the United Nations Sustainable Development Goals (SDGs)
- a deeper understanding of subject-specific sustainability
- the confidence to apply the skills, knowledge, understanding and values they develop in the next stage of their life

Delivery of unit

We recommend that you deliver the unit according to your centre's facilities and resources, and focus on your centre's areas of specialty. You should make use of industry contacts and, where possible, organise site visits to production nurseries to help learners to contextualise their understanding of the industry.

You can integrate delivery of the unit with Horticulture: Professional Practice at SCQF level 8, and other topics according to your centre's facilities and resources.

The notional design length for the unit is 120 hours. The amount of time you allocate to each outcome is at your centre's discretion.

Additional guidance

The guidance in this section is not mandatory.

Content and context for this unit

We recommend that you use a range of delivery methods. You should encourage experiential learning to strengthen learners' practical skills. You should include visits to several case study sites as part of your unit delivery

Outcome 1

We recommend that you relate the scientific principles of production to:

- planning
- production and maintenance techniques
- crop nutrition
- soil science:
 - physical
 - chemical
 - biological
- substrate science:
 - physical
 - chemical
 - biological
- integrated pest management
- irrigation methods and water management
- stock management
- current and future technologies

Outcome 2

We recommend that you use digital technologies, such as spreadsheets and Gantt charts, to enable authentic assessment. Where possible, outcome 2 should be a group experience, with learners taking part in collaborative decision making related to an actual crop-production practice.

Outcome 3

We recommend that you relate plant health and control to actual crops, to help learners develop their understanding of the likelihood of pathogens. You should discuss all aspects of control, including chemical, biological, organic and IPM systems. You should update all advice with current UK government law and regulations, and discuss the environmental implications of control strategies.

We recommend that you regularly update advice on health and safety from the UK government website, with a minimum of a yearly update on laws, protocols and any relevant advice. Where possible, you should teach learners to risk assess using activities, to strengthen their understanding and application.

Resources

Centres delivering this qualification must have suitably qualified staff for each of the subject components. Your centre should already have established processes to ensure staff are appropriately qualified to deliver in this subject area.

Assessors and internal verifiers must hold an industry and/or subject-specific qualification equivalent to the qualification. Centre staff should have relevant industry experience and be able to demonstrate industry-relevant CPD to maintain their subject-specific knowledge and skills.

Centres require access to a range of production systems to learners to generate evidence at SCQF level 8.

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 must consider the needs of individual learners when planning learning experiences, selecting assessment methods or considering alternative evidence.

Guidance on assessment arrangements for disabled learners and those with additional support needs is available on the [assessment arrangements web page](#).

Information for learners

Advanced Production Horticulture (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

As you study this unit, you develop your understanding of commercial crop production, and you learn advanced techniques and technologies.

In the unit, you:

1. evaluate sustainability and environmental implications of commercial horticultural crop-production systems
2. produce a financially viable, integrated, crop-management plan for a commercial horticultural crop production enterprise
3. demonstrate crop-production techniques using a range of production systems

You apply skills in information and communications technology (ICT), and develop financial and marketing literacy to engage with the current best practices in crop production. You develop an understanding of environmental best practice and responsibility, and debate improved sustainable practice in crop production.

Prior knowledge and skills

Before starting the unit, you would benefit from having a foundation knowledge of production horticulture, ideally having completed Production Horticulture at SCQF level 7, on which this unit expands.

We also recommend that you have completed one or more of the following:

- HNC Horticulture
- a horticultural qualification at SCQF level 7
- appropriate work experience in horticulture

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

Assessment

You can be assessed in a variety of ways, which is likely to involve a combination of written and/or recorded work, laboratory and practical crop production tasks.

Future progression and employment

On completion of the unit, and on achievement of the HND, you may be able to progress to the BSc in Horticulture. Alternatively, you may be able to go directly into employment in the horticulture industry or related work placements.

Meta-skills

Throughout this unit, you develop meta-skills that are useful for the horticulture sector.

Meta-skills are transferable behaviours and abilities that help you adapt and succeed in life, study and work. There are three categories of meta-skills: self-management, social intelligence and innovation.

Self-management

You develop self-management skills as you adapt to issues that arise during the production process, and take responsibility for growing crops.

Social intelligence

You develop social intelligence skills as you explain and discuss information, and collaborate with your peers in class and group work.

Innovation

You develop innovation skills as you maintain your curiosity; focus on crop growth and any necessary crop-management decisions; and design and implement a crop-management plan.

Learning for Sustainability

Throughout this unit, you develop skills, knowledge and understanding of sustainability.

You learn about social, economic and environmental sustainability principles and how they relate to the horticulture sector. You also develop an understanding of the [United Nations Sustainable Development Goals](#).

Administrative information

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Superclass: SA

History of changes

Version	Description of change	Date

Please check [our website](#) to ensure you are using the most up-to-date version of this unit.

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