

NextGen: HN unit specification

Applied Horticultural Research (SCQF level 8)

Unit code: JKVQ 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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Contents

Unit purpose	1
Unit outcomes	2
Knowledge and skills.....	4
Meta-skills.....	6
Literacies	7
Learning for Sustainability	8
Delivery of unit	9
Additional guidance.....	10
Equality and inclusion	12
Information for learners.....	13
Administrative information.....	16

Unit purpose

This unit provides learners with the knowledge and skills they need to understand and apply research techniques in the context of horticultural research and plant trials. They can pursue their own interests to develop specialist knowledge.

Centres should provide supplementary resources to support learning where possible.

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 should have a foundation knowledge of practical trials and experimental design, ideally having completed Plant Biology at SCQF level 7 and/or 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

Learners who complete this unit can:

1. select research techniques in the context of horticultural research
2. carry out data collection and demonstrate analytical techniques appropriate to horticultural research
3. present their findings in a scientific manner

Evidence requirements

You should assess this unit through a project. For their projects, learners must plan, carry out and produce a final report on a research question.

Outcome 1

Learners gather evidence that demonstrates that they can:

- carry out a literature review
- create a reference list or bibliography in an appropriate format
- create a research question and hypothesis based on their literature review
- create a plan of work and Gantt chart to answer the research question in a timely manner

Outcome 2

Learners gather evidence that demonstrates that they can:

- use appropriate data-collection techniques
- collect data
- analyse data using digital software

Outcome 3

Learners gather evidence that demonstrates that they can:

- present information in a scientific manner
- effectively communicate data
- discuss their findings in relation to relevant literature
- orally present their findings

You should assess evidence for each outcome in a sequence of submissions. This ensures that learners' projects are appropriate, and that they can be completed in the timescale your centre sets.

Knowledge and skills

Knowledge	Skills
Outcome 1 Learners should understand: - the difference between primary, secondary and tertiary sources of information - how to use appropriate search engines to source information - how to present sources of information, both in text and as a reference list or bibliography (in accordance with the delivery centre's preferences) - how to use academic literature to phrase a research question and hypothesis - how to plan a plant trial or horticultural study within a set timeframe	Outcome 1 Learners can: - source and reference academic literature - phrase research questions and hypotheses, basing them on academic literature - create a plan of work to answer research questions - produce a Gantt chart using digital software
Outcome 2 Learners should understand: - different types of data - different types of variables - collection methods for gathering data - experimental design principles - survey design principles - data-handling methods, using appropriate digital software - how to implement a plant trial or horticultural study within a set timeframe	Outcome 2 Learners can: - apply a scientific method to design a plant trial or horticultural study within a set timeframe - collect data from a plant trial or horticultural study - distinguish between data types and use appropriate digital software to carry out data management and analysis

Knowledge	Skills
Outcome 3 Learners should understand: • how to present information in a scientific manner • how to effectively communicate data • how to make inferences from results and findings	Outcome 3 Learners can: • produce a scientific-style paper based on a plant trial or horticultural study • present information in a scientific manner • communicate data effectively • discuss their findings in relation to relevant literature • present their findings

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:

- focusing:
 - collecting data independently; sourcing and referencing academic literature
- adapting:
 - implementing a plant trial or horticultural study within a set timeframe; using experimental design principles; using appropriate data-collection techniques
- initiative:
 - distinguishing between data types and using appropriate digital software to carry out data management and analysis

Social intelligence

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

- communicating:
 - presenting findings verbally, digitally and graphically
- collaborating:
 - working effectively in groups

Innovation

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

- curiosity:
 - sourcing information using appropriate search engines
- sense-making:
 - producing an academic paper based on a plant trial or horticultural study
- critical thinking:
 - reaching conclusions from results and findings

Literacies

This unit provides opportunities to develop the following literacies.

Numeracy

Learners develop their numeracy skills through statistical analyses.

Communication

Learners enhance their communication skills through group work

Digital

Learners improve their digital skills and computer literacy by using analysis software.

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 this unit within the limitations of your centre's facilities and resources, focusing on areas of speciality. You should take advantage of industry contacts where possible, and we recommend site visits.

You can integrate the unit with Advanced Plant Biology at SCQF level 8.

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

Additional guidance

The guidance in this section is not mandatory.

Content and context for this unit

The evidence examples listed in this section are not exclusive or exhaustive.

Outcomes 1 and 2

Learners complete a project proposal for a plant trial or horticultural study. This could include:

- key literature
- data to be collected and method of collection
- a research question and hypothesis
- experimental design
- possible analytical methods
- a timeline

In addition, learners could collate a logbook of data and research recordings during the running of the plant trial or horticultural study.

Outcome 3

Learners could complete a report, in the form of a journal article, based on the study. They should present their findings to their peers through a simulated conference, as a presentation or poster presentation.

Approaches to assessment

You should assess learners through their projects. For their projects, learners must plan, carry out and produce a final report on a research question.

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.

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

Applied Horticultural Research (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 knowledge of research techniques in the context of horticultural research, and demonstrate the analytical techniques and experimental design methods that are appropriate to horticultural research.

In the unit, you:

1. select research techniques in the context of horticultural research
2. carry out data collection and demonstrate analytical techniques appropriate to horticultural research
3. present their findings in a scientific manner

Prior knowledge and skills

Before starting the unit, you should have a foundation knowledge of practical trials and experimental design, ideally having completed Plant Biology at SCQF level 7 and/or Production Horticulture at SCQF level 7, on which this unit expands. Your centre should give you supplementary resources to support learning, where possible.

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 in achieving learning outcomes and with class activities.

Assessment

You are assessed through a project. For your project, you must plan, carry out and produce a final report on a research question.

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 your self-management skills as you collect data, and reference literature sources; adapt elements of your horticultural trial or study, as you implement it; and take initiative when you carry out data management and analysis.

Social intelligence

You develop your social intelligence skills as you communicate your findings to others, and work effectively on group tasks.

Innovation

You develop your innovation skills as you source information, analyse your horticultural trial or study, and reach conclusions on the basis of research.

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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