



RHS Qualifications

Examination: RHS Level 2
Unit: Unit 1
Examination date: June 24

General Introductory Comments

Examiners' comments are produced by RHS Qualifications following each examination series.

RHS Qualifications will publish an annual report, to share statistical information relating to candidate performance.

The Examiners' comments included in this report are intended to help candidates and centres to develop an understanding of the requirements of the RHS Level 2 examinations. This is achieved through a review of candidate responses indicating key areas of strength, while also considering areas where candidates demonstrated a weaker understanding of Topic areas, or where there was evidence of gaps in their knowledge.

The RHS Level 2 examination papers are designed to assess the contents of the Qualification Specification according to Ofqual's level descriptors.

At Level 2 these state that candidates should:

- possess a knowledge and understanding of facts, procedures and ideas within the field of horticulture
- be able to complete well defined tasks and address straightforward problems
- be aware of a range of information that is relevant to horticulture and demonstrate an ability to interpret relevant information and ideas
- be able to use relevant information to inform actions
- be able to apply their knowledge to a variety of contexts.

Candidates who scored high marks in the June 24 Level 2 examination:

- demonstrated a high level of knowledge and understanding of facts (AO1)
- could apply information and ideas to new contexts (AO2)
- could discuss, and address straightforward problems (AO2)
- could demonstrate holistic/integrated knowledge of the 4 Qualification-wide outcomes and the 4 Topic areas considered in Unit 1.

Overview of Examination

Levels of demand

Questions were set at three levels of demand within this paper.

Questions that require a recall of basic factual knowledge are classified as being **low demand**.

Questions that require the recall of more technical concepts or the application of knowledge are classified as **medium demand**.

Questions that require the recall of advanced technical concepts, the application of these concepts and the integration of these concepts across topics, are classified as **high demand**.

General comments

An analysis of scripts has indicated that strong candidate responses shared many common characteristics:

- used correct horticultural terminology
- provided responses that matched the requirement of the question
- named appropriate horticultural situations
- demonstrated sound knowledge of horticultural practices
- provided correctly formatted scientific plant names
- provided logical arguments
- gave the appropriate number of responses, e.g. name two...

An analysis of scripts has indicated that weaker candidate responses also shared many common characteristics:

- provided responses that did not directly meet the requirement of the question
- provided insufficient detail
- named inappropriate or partially appropriate horticultural situations
- were unable to explain or define terms
- confused fundamental knowledge, for example soil texture and structure
- stated common, or incorrect names, when providing plant examples
- provided partial responses in long form answers.

Qualification specification and Guidance Document

The Qualification specification outlines the curriculum that candidates will be examined on. A Guidance Document is freely available from Quartz and RHS Qualifications. This document was developed to provide centres with additional guidance with regards to the interpretation of the Assessment Outcomes in terms of breadth and depth that is appropriate to a Level 2 qualification.

It should be noted that the Guidance Document is not intended to be a comprehensive guide to teaching and learning. Instead, it is designed to provide examples of some of the key areas contained within an Assessment Outcome. As an example, where an Assessment Outcome in the Qualification Specification formally lists 5 areas that should be included, the Guidance Document may only unpack one of these areas as an example. The centre is then expected to apply the same level of breadth and depth provided in the exemplar to the other areas defined in the Assessment Outcome.

The next review of the Guidance Document will be published for the 2024 teaching year during October. The review ensures the currency and validity of horticultural thinking contained in the document.

Section A

Questions 1 – 20

General comments on Section A

Forced answer questions are designed to test candidate's knowledge and understanding of the concepts covered in the 4 Topics and the 4 Qualification-wide outcomes that make up this unit.

Many candidates were able to score high marks in Section A, indicating a sound grasp of horticultural knowledge, and the application of good examination technique.

Some centres have asked for the correct answers for Section A questions to be made available. As all Section A questions are part of a bank of questions, which may be used in future examination series it is not appropriate to publish the correct answers.

Candidates and centres are reminded of good examination technique with regards to forced answer questions:

- Carefully read the question
- Underline any key or important words
- Score through inappropriate answers
- Select the correct answer to be recorded on the response grid.

Section B

Each question is considered separately.

Question 1

Part a) of this question required candidates to explain the term heeling in.

Strong candidate responses correctly stated that:

- heeling in is temporary protection and covering of roots with soil
- the process of heeling in prevents root desiccation
- the material is often placed into a trench.

Weaker candidate responses:

- did not accurately explain the term heeling in
- confused heeling in with permanent planting.

Weaker candidate responses often lacked detail.

Part b) of this question asked candidates what type of plant material is suitable for heeling in.

Strong candidate responses correctly stated:

- bare root plant material
- root-balled plant material.

Weaker candidate responses gave incorrect responses, which included plant groups, for example trees and shrubs, rather than stating the way in which those trees and shrubs had been produced.

Part c) of this question required candidates to list two critical factors to ensure success when heeling in plant material.

Strong candidate responses correctly stated that:

- the site for heeling in should avoid frost pockets or waterlogged areas
- the site should be protected from wind
- the plants can be placed at an angle for wind protection
- the depth of coverage for roots to ensure frost protection
- the area should be free of rabbits or protected by rabbit proof fencing.

Weaker candidate responses gave partial, or incorrect responses, which included:

- describing the process of planting instead of heeling in
- discussed the importance of firming (as part of the planting process).

Question 2

Some candidates were unfamiliar with the term eutrophication, this indicates a lack of knowledge or gaps in teaching.

Part a) of this question required candidates to define the term eutrophication.

Strong candidate responses correctly defined eutrophication as the process that occurs when there is an excess of nutrients within an ecosystem, resulting in decreased biodiversity, for example by promoting algal blooms in rivers and lakes.

Weaker candidate responses, where provided, described the process of eutrophication rather than provide a formal definition. This then restricted their ability to fully answer part b).

Part b) of the question required candidates to state two horticultural practices that can lead to eutrophication.

Strong candidate responses included:

- the application of excess fertiliser leading to leaching
- poor irrigation practices
- the application of fertilisers prior to major rainfall events
- the application of fertilisers during periods of high soil temperature
- the storage of organic matter adjacent to waterways.

Weaker candidate responses often repeated their answer to part a) as a formal definition had not been stated.

Part c) of the question required candidates to demonstrate additional knowledge about why one of the processes in b) could lead to eutrophication.

Strong candidate responses fully linked cause to effect. Some candidates stated excess nutrients may not have been taken up by plants, and so could be subject to leaching. Other candidate responses made reference to the lack of effective bunding where organic material is stored adjacent to bodies of water resulting in leachate contamination.

Weaker candidate responses often repeated their answer to part a) as a formal definition had not been stated.

Part d) of the question required candidates to demonstrate a fuller understanding of the topic by explaining one way a horticulturist could reduce the risk of eutrophication in the practice described in c).

Strong candidate responses were clearly linked to part c) and discussed approaches such as the installation of bunds, the splitting of fertiliser applications, the reduction in fertiliser usage and careful monitoring of irrigation to prevent leachate.

Weaker candidate responses discussed techniques such as the use of organic fertilisers, which are still highly problematic with regard to eutrophication.

Question 3

Part a) of this question required the candidate to name one horticultural situation where the specification of bare root plant material would be appropriate.

All appropriate horticultural situations were fully credited with marks.

Appropriate horticultural situations provided the candidate with scope for their answers to part b) of the question. These could include, the planting of a mixed hedge, the planting of a small woodland with whips, or the planting of standard trees.

Some weaker candidate responses gave either inappropriate horticultural situations, or non-specific situations, for example a border, without further defining the type of border. This term could include an annual or hardy annual border, which would not be appropriate, as well as an herbaceous border, which would be appropriate.

The second part of the question required the candidate to state three advantages of bare root plant material, when used in the specified situation.

Stronger candidate responses stated advantages including:

- bare root plant material is lower cost than containerised or container grown
- bare root plant material has a lower water footprint
- bare root plant material has a lower carbon footprint
- bare root plant material has lower transport costs.

Weaker candidate responses gave incorrect answers including:

- bare root plant material reduces plant pests
- bare root plant material reduces plant diseases.

Part b) of this question required the candidate to name one horticultural situation where the specification of container grown plant material would be appropriate.

As with part a) all appropriate horticultural situations were fully credited with marks.

Appropriate horticultural situations provided the candidate with scope for their answers to part b) of the question. These could include the sourcing of stock plants for sale in a garden centre, or the procurement of larger specimen plants where quality is of paramount importance.

Some weaker candidate responses gave inappropriate horticultural situations, for example stating container grown plants are suitable for providing instant impact, without stating a horticultural situation.

The second part of the question required the candidate to state three advantages of container grown plant material, when used in the specified situation.

Stronger candidate responses stated advantages including:

- container grown plant material is more widely available
- container grown plant material is of higher quality
- container grown plant material can be held on site until the time of planting
- container grown plant material can be planted throughout the year
- container grown plant material is more appropriate for retail plant sales
- container grown plant material is easier to transport.

Weaker candidate responses gave incorrect responses including:

- discussing the production of container grown plant material
- discussing the use of container grown plant material in horticultural situations.

Question 4

This question required candidates to apply their knowledge of the Qualification-wide outcome, Best Practice.

Part a) required candidates to name one organisation involved in conducting horticultural research, or trials.

Strong candidate responses accurately stated organisations that could be verified as conducting horticultural research and trials. Suitable organisations named included Kew Science, The Royal Horticultural Society, The Royal Society for the Protection of Birds, Gardening Which? or Plant Heritage.

In part b) the depth of candidate knowledge was further assessed, with candidates stating either an area of research, or one specific trial that the organisation conducted. Candidates who provided factually correct answers were awarded a full mark. Examples of candidate work being awarded full marks included: the RHS Award of Garden Merit (AGM) as an area of research, or the AGM Nepeta study as the specific trial.

In part c) the depth of candidate knowledge was further assessed, with candidates sharing the key findings of the trial. This could include stating a specific cultivar of Nepeta as the result of the trial, with a developed point being, for example the reason why that cultivar was awarded the AGM status.

The final part of the question probed for further candidate knowledge and understanding by requiring candidates to explain how the results were reviewed and evaluated to become Best Practice.

Strong candidate responses either contained a list of 4 relevant points, or more detailed explanation of 2 points allowing for the award of marks for developed points, or a combination of the two.

Examples of strong candidate responses included:
(Using the AGM scenario from part c.)

- The results of the trial are reviewed by a forum of industry experts
- There are a clear set of criteria for the plants to be assessed against
- Plants are subject to regular reviews, as the AGM status can be removed
- The results are published
- The published work influences planting decisions, and so has become an example of Best Practice.

Weaker candidate responses to parts a) b) c), and d) of this question:

- demonstrated a lack of knowledge of organisations conducting research/trials
- named organisations that were obscure/which could not be verified
- stated trials that could not be verified
- did not describe key findings
- demonstrated a lack of understanding with regards to terms such as review and evaluate.

Question 5

Part a) of this question required candidates to state two impacts on plant growth of poor soil structure.

Stronger candidate responses accurately stated two impacts of poor soil structure on plant growth. This could include poor soil structure leading to poor root penetration and so reduced nutrient uptake, or poor soil structure leading to reduced oxygen availability, which reduces root growth and so leads to reduced anchorage and stability.

Weaker candidate responses described poorly structured soils, or described poor growth, but did not answer the question by stating the impact of poor soil structure on plant growth. Candidates are advised to consider refining their examination technique, to ensure they are able to offer their horticultural knowledge in a way that gains the maximum mark allocation.

Part b) of the question required candidates to state four distinct ways in which the impacts of poor soil structure can be overcome.

The word distinct in a question requires the candidate to provide answers with differing characteristics or features. In other words, the four distinct ways stated by candidates should be significantly different to each other.

Stronger candidate responses included:

- the concept of breaking soil pans, or subsoiling to reduce compaction
- the concept of using raised beds in highly compacted settings
- the use of drainage to remove soil water
- the use of cultivation windows to ensure conditions are suitable for cultivation.

Weaker candidate responses:

- were not always sufficiently distinct
- contained practices that are no longer considered to be good horticultural practice, for example the addition of grit. This practice is unsustainable (as the grit is a finite/non-renewable resource).
- stated that soil pans or areas of compaction should be removed without stating how.

Question 6

This question required candidates to describe the function of four floral structures.

Stronger candidate responses gave a full and correct description of the function of the floral parts. For example, the sepal protects the flower from damage by weather or pest, and in some plants may attract pollinators.

Weaker candidate responses were either incorrect, lacked detail, or described the structure of the floral part rather than its function.

Question 7

Part a) required the candidate to give one example of a piece of horticultural PPE.

Stronger candidate responses correctly stated examples of horticultural PPE as being goggles or steel toe capped boots.

Weaker candidate responses incorrectly answered the question by stating horticultural tools, for example loppers, or stated horticultural chemicals, which perhaps the PPE was intended to provide protection from.

Part b) of the question required candidates to describe three storage or maintenance procedures. This part of the question was well answered with responses including the need for the storage to be clean, dry, avoiding extreme temperatures and sunlight.

Section C

Section C candidate responses are graded against the assessment ladder, which is on the next page of this report. Candidates and centres are advised to review the ladder as this indicates how the assessment decisions are made, when grading long form responses.

Candidate performance in Section C ranges from those candidates who:

- were prepared to produce long form responses
- carefully planned their answers, including key points
- approached the question logically
- shared horticultural knowledge that was technically correct and to the required depth of knowledge for Level 2
- demonstrated a full and holistic knowledge of the topic areas and Qualification-wide outcomes.

through to candidates who:

- produced very short responses which did not provide the required level of depth and breadth
- provided responses which were unplanned and unstructured
- provided responses that gave a framework, but which did not provide the required level of detail
- picked up on certain words in the question, and wrote all they knew about these words, rather than answering the question.

In addition to the assessment ladder, candidate responses are also reviewed against the criteria set out below:

Indicative content

- Strength of response
- Integration
- Horticultural knowledge.

Strength of response:

Strong candidate responses:

- developed a logical argument to answer the question
- drew on reliable information sources
- were relevant to the question
- expressed clarity of thought
- demonstrated knowledge of horticultural practices.

Integration:

Candidate responses should integrate with other relevant areas of the syllabus.

Further guidance:

Further guidance on Section C will be issued to Centres in December 2024.

Assessment ladder (for information)

Band	Mark range	Summary	Description
4	12 - 15	Fully developed (Total)	<p>A highly detailed, comprehensive, fully relevant response, addressing all aspects of the question</p> <ul style="list-style-type: none"> <input type="checkbox"/> No irrelevant or incorrect material or observations at the top end of the mark range: otherwise only very minor errors/omissions (which do not detract from an otherwise strong response) <input type="checkbox"/> Full integration/clear links demonstrated with other appropriate topics as required: a holistic approach <input type="checkbox"/> Advanced current professional horticultural knowledge/principles demonstrated (and evidence of advanced material beyond the specification at the top end of mark range) <input type="checkbox"/> Consistent use of correct and appropriate technical language.
3	9 - 11	Mainly developed (Solid)	<p>A reasonably detailed and fairly comprehensive response, with mostly relevant observations, addressing most of the key elements of the question</p> <ul style="list-style-type: none"> <input type="checkbox"/> Some minor evidence of irrelevant or incorrect material or observations (in what is otherwise a good response), with occasional lack of detail/omissions at times <input type="checkbox"/> Secure evidence of some appropriate integration with other topics but some linked topic areas are occasionally overlooked or incorrect associations are made: a partially holistic approach <input type="checkbox"/> Current professional horticultural knowledge/principles demonstrated most of the time, with occasional errors, but largely appropriate explanations and application <input type="checkbox"/> Correct and appropriate technical language demonstrated most of the time, with some minor errors.
2	6 - 8	Rudimentary (Basic)	<p>A largely basic response with some relevant observations, addressing some key elements of the question</p> <ul style="list-style-type: none"> <input type="checkbox"/> Some significant evidence of irrelevant or incorrect material and frequent lack of detail, with some key areas overlooked <input type="checkbox"/> Occasional evidence of correct integration with other topics, but many areas are overlooked and incorrect associations made: little evidence of a holistic approach <input type="checkbox"/> Current professional horticultural knowledge/principles demonstrated some of the time, but with frequent errors, and only basic explanations or application <input type="checkbox"/> Correct and appropriate technical language only partially demonstrated but limited. Some key errors.
1	0 - 5	Undeveloped (Unsatisfactory)	<p>A largely poor response with few relevant observations, addressing few of the key elements of the question</p> <ul style="list-style-type: none"> <input type="checkbox"/> Material is largely irrelevant or incorrect and lacking in any detail, with many key areas overlooked <input type="checkbox"/> No, or very little evidence of correct integration with other topics, with many areas overlooked and incorrect associations made: no evidence of a holistic approach <input type="checkbox"/> No or little evidence of current professional horticultural knowledge/principles demonstrated, with poor or incorrect explanations or application <input type="checkbox"/> Little (if any) technical language demonstrated. Often incorrect. Key errors.

Question 1

This question required candidates to respond to a statement: 'Different growing systems offer a range of restrictions and opportunities to horticulturists in the management of pests and pathogens (plant diseases).'

The candidate task was, 'With specific reference to the maintenance of Plant Health in a named horticultural setting, compare and contrast the restrictions and opportunities of two different named growing systems.'

Appropriate horticultural settings could include, vegetable gardens, productive gardens, potagers, community allotments, nursery beds, cutting gardens, herbaceous border or any other appropriate horticultural settings that the candidate may wish to base their response on.

The growing systems selected could include: traditional growing, minimal cultivation, organic, low input, raised beds or any other recognised growing system consistent with the stated horticultural setting.

Examples from candidate responses include: a vegetable garden with the comparison being made between conventional and organic cultivation, other candidates stated a glasshouse where tomatoes are grown in border soil, and in containers.

Candidate responses that scored marks in the higher bands:

- linked all of their key points within their responses to plant health
- discussed the range of plants/crops being grown
- identified potential plant health issues relevant to the plant/crop and the setting
- explained potential impacts from different lifecycle stages of the pest. (Note candidates are not expected to know detailed life cycles but should be able to discuss the damage caused by key stages, for example larvae and adult.)
- discussed and evaluated the methods of control available, while also considering limitations or advantages of the growing system stated
- identified the impact of regulations in the case of certified organic cultivation
- the health and safety impact of any control measures
- consideration of sustainability/environmental impact of control measures
- discussed the concept of garden health plans to evaluate all health risks, and then to evaluate the full range of controls, using, for example the different stages of IPM, starting with scouting but to include cultural control
- the selection of resistant cultivars.

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Candidate responses that scored marks in the lower bands:

- stated two horticultural settings, rather than two growing systems
- did not provide the integration to Sustainability, Best Practice or to Health and Safety
- did not relate their answers to plant health
- provided responses which lacked the required level of technical information.

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Question 2

This question required candidates to name a horticultural setting, and then to discuss the post-planting maintenance tasks involved in the establishment of a range of named woody and herbaceous perennials.

Candidates were required to name a horticultural situation, for example the planting of a woodland garden, or the planting of a mixed border to provide context to the maintenance tasks suggested.

Candidate responses that scored marks in the higher bands:

- named the horticultural setting
- provided named plant examples using scientific plant names
- focused on establishment of the plants (rather than discussing the planting process or long-term maintenance)
- referenced Best Practice with regards to the selection of mulching materials, depth of application, timing of application
- referenced Best Practice with regard to the control of weeds and other spontaneous plants
- discussed the impact of plant density on the maintenance requirements of new plantings
- discussed Best Practice with regards to water management, including irrigation techniques, efficiency of water use (integrating sustainable horticultural practices)
- discussed Best Practice protocols for the monitoring and remedy of pests and diseases
- discussed the review of plantings to identify plant health risks caused by abiotic factors, such as wind rock or scorch
- discussed pruning (as part of plant establishment)
- explained the role of protection, ranging from the use of stakes and tree guards to the use of floating mulches and windbreaks.

Candidate responses that scored marks in the lower bands:

- did not name the horticultural setting, or chose inappropriate settings, for example the establishment of a new herbaceous border, which would not normally include the planting of woody perennials
- either did not provide named plant examples, used common names, or provided a very limited range of plant names
- focused on the planting process (rather than discussing the post planting maintenance tasks)
- focused on long-term maintenance, for example lifting and dividing of plants (rather than discussing the post planting maintenance tasks)
- did not discuss the role of pruning in plant establishment
- did not provide integration to other topic areas.

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Question 3

This question required candidates to discuss how poor management of the soil can have a negative impact on soil structure and plant health. Candidates were further required to make reference to named soil management practices and named plant examples.

Candidate responses that scored marks in the higher bands:

- gave relevant named plant examples to highlight and emphasise points being made, using scientific names
- clearly defined the term soil structure, and explained key terms, for example air filled porosity
- named poor soil management practices, for example poor use of cultivation windows, cultivating soil in adverse conditions
- explained the impact of machinery on soil compaction
- discussed the effect of over cultivation on the degradation of soil structure
- discussed the impact of over cultivation on soil water and drainage
- evaluated plant health considerations, with reference being made to oxygen availability, root growth, anaerobic conditions, and the impact of these on plant growth. For example, the impact of low oxygen levels on root respiration
- explained the impact of poor soil structure on the spread of fungal rootzone diseases
- explained the impact of plant selection on rooting and root penetration
- discussed the ability to withstand high levels of soil water content, the ability to survive in oxygen depleted soils and giving named plant examples.

Candidate responses that scored marks in the lower bands:

- did not provide a definition or explanation of key terms such as soil structure or compaction
- did not provide named plant examples
- did not link soil compaction to poor soil management techniques
- did not link soil management practices to poor plant health
- confused soil structure with soil texture
- provided information and insights that were not relevant to the question
- discussed soil pH or the nutrient content of soils rather than the impact of poor soil management on plant health.

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Question 4

This question required candidates to apply their knowledge of plant science and plant health to describe the damage caused to leaves, including the damage caused to internal leaf structures by a range of plant pests and diseases. Candidates were then required to consider how this damage impacts on plant growth.

Candidate responses that scored marks in the higher bands:

- tackled the question logically, and with care
- described a range of damage caused by different mouth parts of plant pests, for example, rasping, chewing and piercing
- described the damage caused by different plant diseases, for example considering powdery mildew with rose black spot
- fully considered the impact of aphids, including transmission of viral pathogens
- fully considered the range of cell types affected along with their function
- the impact of fungal pathogens reducing photosynthetic area/efficiency along with carbohydrate removal on plant growth
- the impact of plant pests, for example leaf minor, in reducing photosynthetic area of the leaf through the removal of palisade mesophyll cells.

Candidate responses that scored marks in the lower bands:

- made reference to a very limited range of plant pests and diseases, often limiting their responses to caterpillar and leaf spot
- confused the impact of damage on respiration rather than photosynthesis (often confusing these terms)
- provided unstructured responses which were difficult to follow
- did not provide the required level of technical detail in their response.