



R2113

**UNDERSTANDING THE PRODUCTION OF
OUTDOOR VEGETABLES & FRUIT**

Level 2

**Tuesday 21 June 2022
13:30 – 14:20**

Written Examination

Candidate Number:

Candidate Name:

Centre Name:

IMPORTANT – Please read carefully before commencing:

- i) The duration of this paper is **50** minutes;
- ii) **ALL** questions should be attempted;
- iii) **EACH** question carries **10 marks**;
- iv) Write your answers legibly in the spaces provided. It is **NOT** necessary that all lined space is used in answering the questions;
- v) Use **METRIC** measurements only;
- vi) Use black or blue ink only. Pencil can be used for drawing purposes only. Ensure that all diagrams are labelled accurately with the line touching the named object;
- vii) Where plant names are required, they should include genus, species and where appropriate, cultivar;
- viii) Where a question requires a specific number of answers; only the first answers given that meet the question requirement will be accepted, regardless of the number of answers offered;
- ix) Please note, when the word '**distinct**' is used within a question, it means that the items have different characteristics or features.

MARKS

Q3 Describe the production of a main crop of potatoes under the following headings:

- i) named cultivar
- ii) planting (excluding ground preparation)
- iii) harvesting

**1
4
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i).....

ii).....

iii).....

Total Mark

Please see over/.....

MARKS

Q5 Describe the production of a crop of raspberries under **EACH** of the following headings:

- i) advantages of purchasing certified stock
- ii) weed control
- iii) harvesting

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Total Mark

Please see over/.....

MARKS

Q6 Describe the harvesting and storage of a **NAMED** apple crop under **EACH** of the following headings:

- i) named cultivar
- ii) harvesting for storage
- iii) method of storage

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i).....

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Total Mark

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**The Royal Horticultural Society, Wisley, Woking, Surrey GU23 6QB.
Charity Registration Number: 222879/SC038262**

RHS LEVEL 2 CERTIFICATE IN THE PRINCIPLES OF GARDEN PLANNING,

ESTABLISHMENT AND MAINTENANCE

21st JUNE 2022

Candidates Registered	967		Total Candidates Passed	724	89%
Candidates Entered	814	85%	Passed with Commendation	426	52%
Candidates Absent/Withdrawn	129	13%	Passed	298	37%
Candidates Deferred	24	2%	Failed	90	11%

Senior Examiner's Comments:

- 1 Candidates should be able to demonstrate a good range of plant knowledge and be able to give accurately named plant examples where appropriate. Common names and generic names are often too vague and cannot be rewarded in the positive manner that genus, species and where appropriate, variety/cultivar can. This is particularly important when answering questions relating to particular (named) plant(s). Marks can only be awarded for these narratives where the example(s) are correctly and fully identified.
- 2 Candidates must be able to display accurate knowledge of the technical terms and concepts detailed in the syllabus, in the context of horticulture and also be aware that wider interpretation will not be rewarded. The examination should be regarded as a possible introduction to higher level studies, which will only be open to those who are in possession of a clear understanding of the horticultural terms and concepts which are current.
- 3 The introductory rubric given on the first page of each question paper should be read carefully by candidates. At each examination there are a significant number of candidates who ignore or misread the instructions given and consequently may not perform as well as they could have done.
- 4 Candidates should pace themselves during each paper. The most successful candidates allow sufficient time to read the question thoroughly before answering it and also take time to read through their answers. They should take care to write as legibly as possible, so that the examiner is in no doubt about what is intended.

- 5** Candidates need to interpret key words within questions, particularly those such as 'state', 'list' and 'describe'. Questions requiring descriptions or explanations obviously require a more detailed answer than those requiring a list.

- 6** It is important to ensure that responses to questions are to the point. Candidates should bear in mind that small sketches might be used to convey information more succinctly than words.

- 7** Successful candidates ensure that their answers are focused and to the point. It is disappointing when they cannot be rewarded for their efforts because the answer is irrelevant to the particular question. Candidates should take note of the mark allocation for specific sections and allocate their time and efforts accordingly.

- 8** Diagrams can enhance an answer and where appropriate can replace detailed descriptions. They should be large, clear and well annotated, ensuring that labels are properly attached to the features they describe. Diagrams should preferably be in pencil. Colour may be used successfully but only where it is relevant to the answer.

- 9** In each examination it is clear that some candidates are ill prepared to answer papers of the type set. It is essential that candidates have the opportunity to practice questions. Ideally some papers should be answered in a time constrained situation. Appropriate feedback must, in any case be provided.

Q1 a) Name **FOUR** factors to be considered when selecting a site for outdoor food production.

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b) Describe how **TWO** of the factors named in (a) may influence crop growth.

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Q1a) Candidates who were able to name factors to be considered when selecting a site for outdoor food production gained maximum marks. Suitable answers included:

Soil texture, soil structure, aspect, slope, susceptibility to wind, drainage, susceptibility to frost.

Q1b) Many candidates provided good descriptions of how specific factors may influence crop growth and were awarded full marks. Acceptable answers included:

Soil texture

Sandy soils warm up more quickly in spring enabling earlier crops. Nutrients are easily leached from sandy soils and require additional fertiliser regimes. Clay soils are cold and are slow to warm in spring. Clay soils are prone to waterlogging and may cause crown/root rot. Clay soils are nutrient rich.

Soil pH

A pH of 6.5 – 7.0 is ideal for growing vegetables. Blueberries require an acidic soil with a pH of 5.0. Brassicas are more suited to an alkaline soil with a pH over 7.0 to avoid club root whereas potatoes are more prone to scab in alkaline soils.

	MARKS
Q2 a) Describe what is meant by a raised bed.	4
b) State the specification for a typical raised bed and paths.	4
c) Name TWO distinct materials used to construct the framework of a raised bed.	2
Q2a) A raised bed was defined correctly by the best candidates who achieved maximum marks as an area of ground on top of which soil is thrown up from the surrounding paths to create mounds. Raised beds can also have a supporting framework. Compost or organic matter can be incorporated into the soil.	
Q2b) The majority of candidates were able to state the correct specification for a typical raised bed and paths and gained full marks. This is:	
Length – 2.5 – 3m	
Width – 1.2 – 1.6m	
Height – is dependent on the use e.g. accessible for a disabled gardener.	
Paths – 30cm minimum for walking, 45cm minimum for use of a wheelbarrow, up to 1m for wheelchair access.	
Q2c) A wide range of materials used to construct the framework of a raised bed were provided by many candidates who were awarded full marks. These included:	
Timber planks, scaffold boards, new railway sleepers, metal edging, iron sheets, recycled plastic timber (look-a-like planks).	
N.B. Recycled railway sleepers are often contaminated with tar/creosote and should not be used for vegetable and fruit raised bed framework.	

Q3 Describe the production of a main crop of potatoes under the following headings:

- iv) named cultivar
- v) planting (excluding ground preparation)
- vi) harvesting

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Q3) Detailed descriptions were provided by candidates who had a good knowledge of the production of a main crop of potatoes and achieved maximum marks. Suitable answers included:

i) **Named cultivar**

Cara, Maris Piper, King Edward, Desiree, Majestic.

Candidates who named first early or second early potato cultivars could not be awarded any marks.

ii) **Planting**

Main crop potatoes are planted in a narrow trench at a depth of 10-15cm and spaced 35-40cm apart with 60-75cm between the rows. The chitted shoots should be facing upwards and covered with soil and watered.

Candidates who wrote about earthing up could not be awarded any additional marks as this is aftercare and not planting.

iii) **Harvesting**

Main crop potatoes are harvested when the haulms have started to collapse, usually from August onwards. Potatoes are lifted with a fork to minimise damage to the tubers. It is important to harvest all the potatoes to avoid pest and disease problems in the future. Excess soil is removed from the potatoes after lifting. Main crop potatoes are left on the soil to dry for 2-3hours prior to storage.

Candidates who described storage of the harvested potatoes could not be awarded any additional marks as it was not part of the question.

MARKS

Q4 a) Describe what is meant by the term 'cut and come again' vegetables giving **TWO** named crop examples.

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b) Explain how intercropping can be used to maximise vegetable production giving **TWO** named crop examples.

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Q4a) Most candidates understood the meaning of the term 'cut and come again' vegetables and gained full marks. Acceptable answers included:

'Cut and come again' is a term which is applied to a range of leafy salad and vegetable plants that can be harvested, re-grow and harvested again allowing several harvests over a long period of time.

Crop examples include: Chard, loose leaf/salad bowl lettuce, 'Lollo Rosso' lettuce, Mizuna, Rocket, Pak Choi.

4b) Candidates who provided good explanations how intercropping can be used to maximise vegetable production achieved maximum marks. These included:

Intercropping is the process where a rapid growing crop is sown/grown between rows of slower growing crops to maximise production from a given area. The rapid growing crop is harvested before the slower growing crop matures.

Crops that can be grown in this way include:

Rapid growing crops – lettuce, salad leaves, rocket, radish

Slower growing crops – parsnip, leeks, garlic, beetroot, main crop potatoes.

Q5 Describe the production of a crop of raspberries under **EACH** of the following headings:

- iv) advantages of purchasing certified stock
- v) weed control
- vi) harvesting

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Q5) Candidates who described specific aspects of the production of a crop of raspberries were awarded full marks. Suitable answers included:

i) **Advantages of purchasing certified stock**

Raspberry canes that are certified stock are true to type and virus free. The canes will be disease free.

Candidates who stated that certified stock is pest and disease resistant could not be awarded any marks as this is not true.

ii) **Weed control**

Raspberries are shallow rooted and are best weeded by hand. Hoeing can be carried out between the rows but care must be taken to avoid damaging the roots of the canes or suckers may form.

Raspberries can be mulched to reduce weed infestation by using well-rotted farm yard manure or garden compost to a depth of 50-100mm.

In established crops perennial weeds can be spot treated with an herbicide e.g. Glyphosate. Alternatively, mypex/permeable membrane can be used between the rows of raspberry canes as a weed suppressant.

iii) **Harvesting**

Summer fruiting raspberries are harvested in July/August and autumn fruiting raspberries are harvested in September/October. Raspberries should be picked carefully, by hand on a dry day either early or late in the day when it is cool. The berries should have good colour and leave the canes easily and the plug (core) should be left behind. Any diseased/damaged fruit is discarded. Raspberries should not be piled too deeply on top of each other as the fruits are easily damaged.

Q6 Describe the harvesting and storage of a **NAMED** apple crop under **EACH** of the following headings:

- iv) named cultivar
- v) harvesting for storage
- vi) method of storage

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4
5

Q6a) Many candidates gained maximum marks by providing good descriptions of the harvesting and storage of an apple crop.

i) **Named cultivar**

'Bramley Seedling', 'Braeburn', 'Cox's Orange Pippin'.

Candidates who named early fruiting varieties which have a short storage capability could not be awarded any marks.

ii) **Harvesting for storage**

Apples for storage are harvested when slightly under-ripe and still firm e.g. 'Bramley Seedling' is harvested in mid-autumn. They should be harvested on a cool, dry day and be pest and disease free as well as bruise/blemish free. The fruits are cupped in the hand and twisted and should come away fairly easily with the stalk intact.

iii) **Method of storage**

Apples can be stored in apple racks/drawers, wooden boxes or plastic bags. The fruits should be kept in a vermin-free, cool, frost-free location with a temperature of 3-5°C. When storing apples in wooden racks or boxes the apples can be wrapped individually in greaseproof paper/newspaper/tissue paper and not touching to prevent rot. If apples are stored in plastic bags the bags must have a few holes in them to allow for a balance of humidity and air circulation. Four-five apples are placed in a bag and the top of the bag is folded over but not sealed and kept in a dark place.