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R2113

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

Level 2

Tuesday 6 February 2018

13:30 – 14:20

Written Examination

Candidate Number:

Candidate Name:

Centre Number/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 lined space 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;
- 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.

ANSWER ALL QUESTIONS

Q1 State **TWO** limitations that need to be considered for **EACH** of the following factors when selecting a site for outdoor food production by completing the table below.

MARKS

Factor	Limitations	
Poor soil structure	1.	1
	2.	1
Soil depth	1.	1
	2.	1
North facing aspect	1.	1
	2.	1
Exposure to wind	1.	1
	2.	1
Availability of water	1.	1
	2.	1
		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Total Mark</div>

Please see over/.....

MARKS

Q3 Describe the production of a crop of onions under **EACH** of the following headings:

- i) named cultivar;
- ii) planting of sets;
- iii) harvesting.

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5
4

i).....

ii).....

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Total Mark

Please see over/.....

MARKS

Q4 Describe the effect of plant spacing for **ONE** distinct **NAMED** 'baby' vegetable crop under **EACH** of the following headings.

- i) named crop;
- ii) production of 'baby' vegetables;
- iii) uniformity;
- iv) crop yield.

- 1**
- 2**
- 3**
- 4**

i).....

ii).....

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iii).....

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Total Mark

Please turn over/.....

MARKS

Q6 Describe the establishment and maintenance of blackcurrants under **EACH** of the following headings:

- i) ground preparation;
- ii) planting;
- iii) pruning of established plants.

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3
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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**



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Level 2

Tuesday 6 February 2018

Candidates Registered	484		Total Candidates Passed	311	79.13%
Candidates Entered	393	81.20%	Passed with Commendation	114	29.01%
Candidates Absent/Withdrawn	81	16.73%	Passed	197	50.12%
Candidates Deferred	10	2.07%	Failed	82	20.87%

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
- 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 State **TWO** limitations that need to be considered for **EACH** of the following factors when selecting a site for outdoor food production by completing the table below.

Factor	Limitations	
Poor soil structure	1.	1
	2.	1
Soil depth	1.	1
	2.	1
North facing aspect	1.	1
	2.	1
Exposure to wind	1.	1
	2.	1
Availability of water	1.	1
	2.	1

Q1a) Candidates who were able to provide limitations for specific factors when selecting a site for outdoor food production gained maximum marks. Suitable answers included;

Poor Soil Structure

- Restriction of gaseous exchange at root level
- May reduce the roots' ability to access nutrients
- Restriction of development of root crops

Soil Depth

- Shallow soils will impede the root establishment of fruit trees
- Shallow soils will limit the growing of root crops
- There will be a lack of anchorage causing wind rock

North Facing Aspect

- Soil may be cold
- Will receive lower light levels
- Frost potential is increased

Exposure to Wind

- Causes physical damage to crops
- Discourages pollinating insects from flying
- Can cause/contribute to soil erosion

Availability of Water

- May need to install water butts or rain harvesters
- Lack of water will result in poor and/or reduced crop yield
- May need to transport water from elsewhere

Q2 Describe the propagation of **ONE** distinct **NAMED** vegetable crop for **EACH** of the following methods:

- i) sowing seed in modules;
- ii) direct sowing in drills.

5
5

Q2) Maximum marks were awarded to candidates who provided detailed descriptions of specific propagation methods for named vegetable crops. Suitable answers included;

i) **Sowing Seeds in Modules**

Courgette 'Defender' can be sown in clean/sterilised modules using John Innes seed sowing compost. One or two seeds can be sown on their side per module and backfilled with the seed compost. Modules are watered and labelled

ii) **Direct Sowing in Drills**

Carrot 'Vita Longa' are sown in soil with a fine tilth. A 'V' shaped drill is drawn with the back of a rake against a garden line to a depth of 13cm. The bottom of the drill is watered before the seed is sown thinly and evenly along the length of the drill. The soil is drawn back over the drill and labelled

Q3 Describe the production of a crop of onions under **EACH** of the following headings:

- | | |
|------------------------------|----------|
| i) <i>named cultivar;</i> | 1 |
| ii) <i>planting of sets;</i> | 5 |
| iii) <i>harvesting.</i> | 4 |

Q3) Many candidates were able to describe the production of a crop of onions and were awarded full marks. Acceptable answers included;

- i) **Named Cultivar** – Onion ‘Red Baron’

- ii) **Planting of Sets** – Onion sets are normally planted from early to mid-spring in soil that is weed free and has been cultivated to a fine tilth. Onion sets are planted in rows 25 – 30cm apart and 7.5 – 15cm apart in the row depending on the cultivar. The onion sets are pushed into the soil so that the tips are at or just below soil level. If they are not planted deep enough birds may pull them out. Water and label them

- iii) **Harvesting** – Onions are usually harvested on a dry sunny day during late August/early September when the foliage starts to die down and the tops bend over. The onions are carefully lifted from the soil using a fork and in dry weather they are left on the surface for a minimum of seven days to dry. In damp weather dry the onions in slatted trays in a greenhouse or shed. The skins should be paper dry. Any diseased or damaged onions are removed and the roots and top growth can be removed once the onions are dry

Q4 Describe the effect of plant spacing for **ONE** distinct **NAMED** 'baby' vegetable crop under **EACH** of the following headings.

- | | |
|---|----------|
| i) <i>named crop;</i> | 1 |
| ii) <i>production of 'baby' vegetables;</i> | 2 |
| iii) <i>uniformity;</i> | 3 |
| iv) <i>crop yield.</i> | 4 |

Q4) Candidates who were able to describe the effect of plant spacing for a 'baby' vegetable crop gained full marks. Suitable answers included;

- i) **Named Crop** – Carrot or Beetroot
- ii) **Production of 'baby' vegetables** – 'Baby' vegetables are produced by using closer crop spacing or from thinning a crop e.g. carrot to the final spacing where the thinnings become the crop for consumption. 'Baby' vegetables can also be intentionally grown by sowing thinly and spacing the crop to minimal distances
- iii) **Uniformity** – Correct final spacing will result in a uniform crop where the harvested crop is of equal size and of equal quality. Spacing a crop too closely will cause competition which will result in a poor quality crop of uneven size
- iv) **Crop Yield** – Correct final spacing will maximise the crop potential and should result in a high yield. Excessive spacing wastes potential cropping area and reduces potential yield. Spacing a crop too closely may make the crop more susceptible to pest and disease attack which will result in a poor yield

	MARKS
Q5 a) Name ONE dessert AND ONE culinary apple cultivar.	2
b) State SIX factors to be considered when choosing an apple tree for a domestic garden.	6
c) Name ONE common pest and ONE common disease of apples.	2

Q5a) The majority of candidates were able to name examples of both dessert and culinary apples and were awarded full marks. Acceptable answers included;

Dessert – ‘Beauty of Bath’, ‘Discovery’, ‘James Grieve’

Culinary – ‘Lord Derby’, ‘Bramley’s Seedling’, ‘Grenadier’

Q5b) A range of factors relating to the choice of an apple tree for a domestic garden were provided by candidates who gained full marks. These included;

- Choice of dessert or culinary cultivars
- Early, mid or late season cropping cultivars
- Susceptibility of cultivar to pest, disease or disorders
- Rootstock choice
- Ultimate size of tree
- Potential yield
- Flavour of apples
- Storage capabilities of apples

Q5c) Candidates named a range of pests and diseases of apples and were awarded full marks. Suitable answers included;

Pests – Codling Moth, Apple Sawfly, Woolly Aphid, Wasp

Diseases – Apple Canker, Apple Scab, Powdery Mildew, Brown Rot

MARKS

Q6 Describe the establishment and maintenance of blackcurrants under **EACH** of the following headings:

- | | |
|-------------------------------------|----------|
| i) ground preparation; | 3 |
| ii) planting; | 3 |
| iii) pruning of established plants. | 4 |

Q6) Most candidates were able to describe specific aspects of the establishment and maintenance of blackcurrants and achieved maximum marks. These included;

- i) **Ground Preparation** – All weeds need to be removed and perennial weeds should be treated with an appropriate herbicide e.g. glyphosate. The ground should be forked over and a balanced fertiliser, e.g. Growmore applied at a rate of 35g/m² and incorporated into the soil prior to planting
- ii) **Planting** – Bare root bushes of blackcurrants are planted in late autumn/early winter 1.2m -1.5m apart in both directions. The plants should be planted 5cm lower than previously to encourage new growth from the base. All stems should be cut down to one bud after planting to encourage strong, new growth. A mulch of bulky organic matter can be applied around the base of the bush to a depth of 50 – 75mm
- iii) **Pruning of Established Plants** – Pruning is carried out in early to mid-winter where a quarter to one third of two year old wood is removed to the base as blackcurrants fruit on the previous season's growth. Any dead, diseased or damaged wood is also removed
