



Sharing the best in Gardening

**R2103
MAINTAINING PLANT HEALTH**

Level 2

Monday 25 June 2012

13:30 – 14:10

Written Examination

Candidate Name:

Candidate Number:

Centre Name/Number:

IMPORTANT – Please read carefully before commencing.

- i) The duration of this paper is **40** minutes.
- ii) **ALL** questions should be attempted.
- iii) **EACH** question carries **10 marks**.
- iv) Write your answers legibly in the spaces provided.
- v) Use **METRIC** measurements only.
- vi) Where plant names are required, they should include genus, species and where appropriate, cultivar.
- vii) Please note, sufficient lined space is provided. It is **NOT** necessary that all lined space is used in answering the questions.

Ofqual Unit Code K/601/0342

Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

- Q1** a) Describe **THREE** physical or cultural methods of control for **NAMED** plant pests.

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- b) State **TWO** garden practices that can disturb the natural balance of plant protection in a garden.

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Total Mark

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Q2 a) Name **TWO** perennial weeds commonly found in woody perennial plantings.

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b) Describe the problems caused by perennial weeds in woody perennial plantings.

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c) State, for **ONE** weed listed in a):

- i) a **NAMED** herbicide;
- ii) its mode of action.

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Total Mark

Please turn over/.....

Q3 a) Describe the stages in the life cycle of the vine weevil.

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b) Describe the damage caused by vine weevils to plants.

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Total Mark

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Q4 a) Describe the symptoms of potato blight on a **NAMED** crop.

6

[illegible]

b) Describe **TWO** distinct methods of reducing the incidence of potato blight.

4

Total Mark

Please turn over/.....

Q5 a) Describe **THREE** effects of prolonged drought on a **NAMED** crop.

6

b) List **FOUR** other physiological disorders affecting plant growth.

4

[illegible]

Total Mark

Please see over/.....

Q6 a) Describe what is meant by a 'weed'.

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b) Describe the types of weed likely to be found in:

- i) recently cultivated soils;
- ii) lawns.

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c) Name **TWO** weeds associated with **EACH** situation named in b).

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Total Mark

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



**R2103
MAINTAINING PLANT HEALTH**

Level 2

Monday 25 June 2012

Candidates Registered	593	Pass with Commendation	102 (21%)
Candidates Entered	478	Pass	196 (41%)
Absent/Withdrawn/Deferred	115	Fail	180 (38%)
Total Candidates Passed	298 (62%)		

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 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, and preferably 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.
10. Candidates should be aware of the reading list of suggested books for the RHS Level 2 Certificate in The Principles of Plant Growth, Propagation and Development which is available from the Qualifications Section and can also be found on the RHS website together with past papers

Examiners' Comments:

		MARKS
Q1	a) Describe THREE physical or cultural methods of control for NAMED plant pests.	6
	b) State TWO garden practices that can disturb the natural balance of plant protection in a garden.	4
a)	Most candidates were able to describe a suitable method of physical or cultural control for a named pest or pests. Examples included the use of physical barriers e.g. netting, hand picking and the removal of alternative hosts etc. The use of yellow sticky traps is an inappropriate physical method of control for glasshouse whitefly as it is only used to monitor the population of adult whitefly and not as a control and therefore marks could not be awarded.	
b)	Full marks were awarded to those candidates who provided suitable garden practices including the use of nitrogenous fertilisers that can make growth soft and susceptible, the lack of crop rotation, the overuse of pesticides, bad timing of the application of pesticides, and the introduction of new, infected plants and plant material.	

- Q2** a) Name **TWO** perennial weeds commonly found in woody perennial plantings. **2**
- b) Describe the problems caused by perennial weeds in woody perennial plantings. **4**
- c) State, for **ONE** weed listed in a):
- i) a **NAMED** herbicide;
- ii) its mode of action. **4**

- a) The majority of candidates were able to provide suitable examples of perennial weeds commonly found in perennial plantings; e.g. *Convolvulus arvensis*, *Rubus fruticosus* and *Aegopodium podagraria*. *Hedera helix* was also accepted due to its potentially damaging effect on trees and larger shrubs.
- b) A wide range of problems were described by most candidates who were awarded full marks for this section of the question. These included; the introduction of pests and diseases, the distortion of growth of cultivated species, the potentially damaging use of translocated herbicides, the use of valuable light, water and nutrients and the unsightly appearance of weeds in a decorative garden setting. The difficulty of physically removing perennial weeds was also described.
- c) The majority of candidates named a suitable herbicide and its mode of action for one of the weeds stated in part a) of the question e.g. glyphosate whose mode of action is translocated can be used to control *Aegopodium podagraria* and gained full marks.

Marks could not be awarded to candidates who did not name a weed or gave a trade name for the herbicide.

- Q3** a) Describe the stages in the life cycle of the vine weevil. **6**
- b) Describe the damage caused by vine weevils to plants. **4**
- a) Candidates who gained full marks for this section of the question described in detail the life cycle of the vine weevil. This included; the all female population, the number of eggs laid in a season, the nocturnal habit of the adult, the pupation deep in the soil, the preference for container grown plants by the larva and that under any form of protected growing all stages of the pest may be present at any time of the year.
- b) Most candidates were able to describe the damage caused by the larval and adult stages of the vine weevil; i.e. the larvae destroy the roots of plants causing the yellowing of older leaves, wilting and total collapse of plants. The adults cause damage to plants mainly with evergreen leaves e.g. *Rhododendron arboreum* by leaving irregular notches or holes on the leaf margins.

- c) Candidates needed to clearly differentiate between the larval and adult stages when describing the damage to gain full marks.

Q4 a) *Describe the symptoms of potato blight on a **NAMED** crop.* **6**

b) *Describe **TWO** distinct methods of reducing the incidence of potato blight.* **4**

- a) Candidates who named a crop and provided a full description of the typical damage to leaves, stems, fruits and/or tubers were awarded full marks. Most candidates described the symptoms of potato blight on potatoes to include; foliage collapse into a rotting mass, white fungal growth on the underside of leaves, tubers showing reddish-brown below skin, brown lesions on stem etc.

A number of candidates described the symptoms of potato blight on tomatoes and were also awarded full marks.

- b) The best candidates provided a range of methods including; the use of approved chemicals at the appropriate time in high risk periods, burning infected material, implementation of a four year crop rotation, earthing up potatoes and the use of resistant cultivars e.g. Potato 'Estima' and were awarded full marks.

Q5 a) *Describe **THREE** effects of prolonged drought on a **NAMED** crop.* **6**

b) *List **FOUR** other physiological disorders affecting plant growth.* **4**

- a) Candidates who named a crop and related their descriptions to prolonged drought gained full marks. Suitable responses included; the reduction in foliage size, crop yield and new growth, increased susceptibility to pests and diseases, early bolting and excessive flowering.

- b) The majority of candidates provided suitable examples of physiological disorders and were awarded full marks. A wide range of examples were given and included; nutrient deficiencies, wind or frost damage, water-logging, high or low temperatures, high or low light levels, bolting, blindness etc.

Q6 a) *Describe what is meant by a 'weed'.* **2**

b) *Describe the types of weed likely to be found in:*

- i) *recently cultivated soils;* **2**
 ii) *lawns.* **2**

c) Name **TWO** weeds associated with **EACH** situation named in b).

4

- a) Most candidates gave a suitable explanation of what is meant by a weed but the best candidates provided details on the types of potential threats that weeds present cultivated plants and gained full marks.
- b) i) Candidates who described how ephemeral and annual weeds germinate when their seeds are brought into the light by cultivation were awarded full marks.
- ii) To gain full marks for this section of the question candidates needed to describe that the weeds must be able to survive in a regularly mown environment, whether they are rosette, tap rooted or stoloniferous perennials or annuals e.g. *Poa annua* which is present in most lawns.
- c) The best candidates provided full botanical names for weeds for each situation and were awarded full marks. Suitable examples included; *Cardamine hirsuta* and *Senecio vulgaris* for recently cultivated soils and *Taraxacum officinale* and *Ranunculus repens* for lawns.

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