

ASSESSMENT GUIDELINES

Unit 21557

Identify plant pests, diseases and disorders and describe control measures.

Level 3, Credit 4, Version 1

Identify plant pests, diseases and disorders and describe control measures

Unit standard 21557

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Level of performance required for this unit standard

This is a level 3 unit standard. At this level trainees are expected to demonstrate the following abilities when completing assessment tasks:

- To work under general supervision, with some independence; with significant responsibility for the standard of the outcome achieved.
- To apply technical skills and knowledge to complete the task to the specified standard, in a familiar context.
- To interpret available information, and use discretion and judgment.

Workplace assessment:

For guidelines on Workplace Assessment, please refer to the NZHITO Workplace Assessors Manual, and for further information, please contact: NZHITO, P O Box 8638, Christchurch. Ph 03 9644 735, Fax 03 9644 737, Website: www.hortito.org.nz

Special notes:

1. Legislation and relevant regulations relevant to this unit standard include but are not limited to – Hazardous Substances and New Organisms Act 1996, and relevant regulations; Health and Safety in Employment Act 1992.
2. The New Zealand Standard applicable to this unit standard is NZS 8409:2004 *The management of agrichemicals*, available from <http://www.standards.co.nz>.
3. Codes and related documentation applicable to this unit standard include but are not limited to: *Responsible Care Management System*, available from the New Zealand Chemical Industry Council (NZCIC, PO Box 5069, Wellington).

4. Definitions

agrichemical – any substance, whether inorganic or organic, man-made or naturally occurring, modified or in its original state, that is used in any agriculture, horticulture or related activity, to eradicate, modify or control flora and fauna. It includes agricultural compounds, fertilisers, vertebrate pest control products and oral nutrition products (this definition differs to that in NZS 8409:2004, where *agrichemicals* exclude fertilisers, vertebrate pest control products and oral nutrition products);

plant pest – an undesirable organism injurious to humans or plants;

plant disease – a plant growth symptom that develops in response to infection from a pathogen;

plant disorder – a plant growth response to an abiotic factor such as nutrient deficiency, weather or herbicide damage;

signs – indication of the presence of the plant pest, plant disease, or plant disorder;

symptoms – the plant's response to the presence of the plant pest, plant disease, or plant disorder;

legal – a weed prevention and control method carried out in response to legislative requirements which includes but is not limited to the Biosecurity Act 1993.

5. Assessment - identification of the presence of plant pests, plant diseases, and plant disorders does not include laboratory analysis.

Acknowledgement

At the back of this assessment guide is an *Agriculture ITO* endorsed question paper, with answers attached, which has been developed for this unit standard. The attached question paper may be used by the Workplace Assessor to carry out assessment and marking of this unit standard on-job.

If you do decide to use the question paper as your method of assessment we only require you to submit the completion form to the NZHITO once the student is deemed to be competent, as is our normal practice.

Unit 21557: Identify plant pests, diseases and disorders and describe control measures
(Apprentice copy)

ELEMENT	Competent	Range of evidence an assessor should consider
<p>Element 1 Define, and identify the presence of plant pests, plant diseases, and plant disorders.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Define the terms plant pest, plant disease, and plant disorder in relation to a specified land based industry. ▪ Identify the presence of plant pests, plant diseases, and plant disorders by their signs, and visible symptoms. Range: evidence is required for at least three plant pests, three plant diseases, and three plant disorders.
<p>Element 2 Describe the life cycles of plant pests and plant diseases, and the distinguishing features of plant pests, plant diseases, and plant disorders.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Describe cycles in sequence, the stages in plant pest, and plant disease life ensuring to describe the signs, and symptoms of each stage in terms of plant damage. Range: evidence is required for at least two different insect life cycles, and two diseases life cycles. ▪ Distinguished by their signs, and symptoms; plant pests, plant diseases, and plant disorders. Range: evidence is required for at least four plant pests, three plant diseases, and two plant disorders.
<p>Element 3 Describe plant pest, plant disease, and plant disorder prevention and control methods. Range: biological, physical, cultural, chemical, legal, integrated pest management (IPM).</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Describe prevention and control methods in terms of their advantages and disadvantages. ▪ Describe prevention and control methods in terms of their suitability for a specified land based industry.

_____ (Name of Apprentice)

is **Competent / Not yet competent** in Unit Standard 21557, version 1

Signed (Assessor): _____

WPA Registration Number: _____ Date: _____

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Please send this page to your NZHITO Regional Manager, who will forward it to National Office to register the credits on your NZQA Record of Learning.

Unit 21557: Identify plant pests, diseases and disorders and describe control measures.

(Name of Apprentice)

is Competent in Unit Standard 21557. (version 1)

Signed (Assessor):

WPA Registration Number: _____

Date: _____

Identify Plant Pests, Diseases and Disorders and Describe Control Measures

Instructions:

1. Write your name, address and the date you hand in this Assessment in the box below.
2. Answer all questions. Use more paper if required.
3. All answers must be in your own words.
4. You must show that you have achieved the standard in all elements of the unit standard.
5. If you do not attain the standard you will have an opportunity to attempt part or all of the assessment again either orally or written, after some further study.
6. If there are any questions you don't understand, or if you have any difficulty reading the questions, please ask your tutor or supervisor for some help.
7. This is an OPEN book assessment.

Student To Complete:

Student Name:	
Address:	
Date Handed In:	
Declaration:	This assessment is all my own work <div style="text-align: right;">(Your signature)</div>

Assessor To Complete:

Course Number/Name:	
Standard Achieved:	Yes / No (Delete One)
Assessor's Name & Signature:	
Date:	
Comments:	
Questions to Resit:	

Assessment Retake Date:	
Standard Achieved:	Yes / No (Delete One)
Assessor's Name & Signature:	

Identify Plant Pests, Diseases, and Disorders, and Describe Control Measures

Unit 21557

Level 3

Credits 4

1. Define what is meant by the following terms and give examples in relation to a specific land based industry.

(a) Plant Pest

(b) Plant Disease

(c) Plant Disorder

2. Give three (3) examples of plant pests from your choice of land based industry. Describe the signs and/or symptoms and draw or provide a photograph of each pest.

Name of Pest	Plant or Plant Types it Affects	Signs and/or Symptoms	
		Description of Signs and Symptoms of Damage	Drawing or Photo of the Pest

3. Give three (3) examples of plant diseases from your choice of land based industry. Describe the signs and/or symptoms and draw or provide a photograph of each disease.

Name of Disease	Plant or Plant Type Affected by this Disease	Signs and/or Symptoms	
		Description	Drawing or Photo

4. Give three (3) examples of plant disorders from your choice of land based industry. Describe the signs and/or symptoms of the disorder.

Example of Disorder	Plant or Plant Type Affected	Signs and/or Symptoms Description

5. (a) Draw a labelled diagram of two different insect/pest life cycles that are significant in your choice of land based industry and in your district. At relevant stages of the life cycle describe the signs and/or symptoms of damage to plants. Be sure to show and label each stage of the life cycle.

1.	2.
----	----

- (b) Show on your diagram (above) the points in the life cycle at which controls are most likely to have most benefit to the grower or farmer and discuss why below.

6. (a) Describe the method of infection and progression of two plant diseases applicable to your land based industry and district.

1.	2.
----	----

(b) Explain when controls are most likely to have most benefit to the grower or farmer and discuss why below.

7. Identify the common or scientific names of the plant pests, diseases and disorders from the samples provided by your assessor. You must correctly identify at least 4 pests, 3 diseases and 2 disorders.

Sample	Name
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	

8. Describe what each of the following prevention and control methods entails for plant pests, diseases or disorders. Give two (2) examples of each that are applicable to your chosen land based industry and district and note any regulatory or compliance requirements that apply.

(a) Biological Control

Example 1: _____

Example 2: _____

(b) Physical Control

Example 1: _____

Example 2: _____

(c) Cultural Control

Example 1: _____

Example 2: _____

(d) Chemical Control

Example 1: _____

Example 2: _____

(e) Integrated Pest Management (IPM)

Example 1: _____

Example 2: _____

9. Describe the advantages and disadvantages of the following prevention and control methods for one or more plants or plant types in a land based industry of your choice.

Prevention & Control Methods	Advantages	Disadvantages
Biological		
Physical		
Cultural		

Chemical		
IPM		

10. (a) At a farm discussion group you notice that your neighbour has clover flea damage appearing in his/her pasture. You head home and find the boundary paddocks show some damage but can't find any in the other paddocks on the farm. What prevention and control methods would be suitable for this pest and situation?

- (b) Last year you experienced club-root in your brassica crop. Describe what you will do this year to prevent the same problem recurring in your planned crop.

- (c) You are planning to grow a crop of ... with xx disorder. Describe what you will do to control this and prevent it happening in the future.

MARKING SCHEDULE

Identify Plant Pests, Diseases, and Disorders, and Describe Control Measures

Unit 21557

Level 3

Credits 4

Note to Assessors: You will need to provide samples for Question 7.

Question	Element	Evidence	Judgement
1	1	(a) Plant pest is defined (b) Plant disease is defined (c) Plant Disorder is defined	Correct definition.
2	1	Model answers will vary depending on the plant or plant types chosen	Three (3) plant pests valid for chosen plant or plant type correctly named, described and a drawing or photograph provided.
3	1	Model answers will vary depending on the plant or plant types chosen	Three (3) plant diseases correctly named and described and a drawing or photograph provided. Must include crop name
4	1	Model answers will vary depending on the plant or plant types chosen	Three (3) plant disorders correctly named and described and a drawing or photograph provided. Must include crop name
5	2	Two (2) insect life cycles applicable to chosen plant or plant type. Relates possible control methods to stages in the life cycle.	Correct signs and/or symptoms. Life cycles to be in correct sequence. Each stage labelled correctly.
6	2	Two diseases applicable to chosen plant or plant type. Relates possible control methods timing in the progression in the prevention/control of disease.	2 diseases include method of infection – how the disease progresses.
7	1 & 2	Identifies plant pests, diseases and disorders from actual plant samples or photographs supplied by assessor.	Four (4) plant pests, three (3) plant diseases, two (2) plant disorders correctly identified by common name.

Question	Element	Evidence	Judgement
8	3	<p>(a) Biological Control: Introducing a predator organism or disease causing organism to control plant pests or disease pathogens.</p> <p>(b) Physical control: Mechanical killing of plant pests or disease eg burning, rolling, squashing etc.</p> <p>(c) Cultural control: changing the environment so that it is less suitable for the pest or disease organism. Eg changing the pH, soil fertility, humidity etc.</p> <p>(d) Chemical control: Use of pesticides, sanitisers or other chemicals to kill off pest or disease organism/s.</p> <p>(e) Integrated pest management: monitoring of pest levels and using a range of different control methods for control. Only using chemical control when pest/disease levels get to a certain threshold.</p> <p>Examples given for each control method will vary with chosen land based industry.</p>	<p>Correct description/ definition plus two (2) examples for each of (a) to (e) inclusive that relate to chosen industry or plant types. Includes discussion of regulations or compliance that might apply</p>
9	3	<p>Advantages and disadvantages of the different types of control method are discussed/described with relevance to a particular plant type.</p>	<p>At least one advantage and one disadvantage of each prevention and/or control method is covered and is relevant to the industry chosen.</p>
10	3	<p>Possible prevention and/or control methods are outlined for the scenarios given. Scenarios to cover pests, disease and disorders for one land based industry.</p>	<p>At least one valid prevention and/or control method is outlined for each scenario.</p>