

ASSESSMENT GUIDELINES

Unit 21555

Demonstrate knowledge of weeds and their control.

Level 2, Credit 4, Version 1

Demonstrate knowledge of weeds and their control

Unit standard 21555

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Level of performance required for this unit standard

This is a level 2 unit standard. At this level trainees are expected to demonstrate the following abilities when completing assessment tasks:

- To work under general supervision, as directed; with some responsibility for the standard of the outcome achieved.
- To complete tasks that are established and familiar, with a moderate range of skill and knowledge.
- To apply basic operational knowledge, use readily available information and known solutions to solve familiar problems.

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; Biosecurity Act 1993.
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 given in NZS 8409:2004, where *agrichemicals* exclude fertilisers, vertebrate pest control products and oral nutrition products);

weed – a plant that interferes with the management objectives of a land based industry at a particular location. It is a plant growing where it is not wanted, however under certain situations, the plant may not be totally undesirable;
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.

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 21555: Demonstrate knowledge of weeds and their control.
(Apprentice copy)**

ELEMENT	Competent	Range of evidence an assessor should consider
<p>Element 1 Identify weeds, and the ways they survive and spread.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Define weeds, and identify and describe their detrimental effects, in relation to a specified land based industry. ▪ Identified by sight weeds from a specified region and land based industry. Range: evidence is required for at least 15 weeds. ▪ Describe weed survival in terms of plant adaptation and dispersal. Range: plant type, plant reproduction, physical and chemical defences, plant vigour, root systems. ▪ Describe plant life cycles. Range: life cycles – annual, biennial, ephemeral; perennial – herbaceous, woody.
<p>Element 2 Describe methods of weed prevention and control, and the relationship between weed control and plant life cycles.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Describe weed prevention and control in terms of the methods used. Range: methods – biological, chemical, cultural, physical, legal. ▪ Describe the implications of weed prevention and control, in relation to each stage of the plant life cycle. Range: life cycles – annual, biennial, ephemeral; perennial – herbaceous, woody.

_____ (Name of Apprentice)

is **Competent / Not yet competent** in Unit Standard 21555, version 1

Signed (Assessor): _____

WPA Registration Number: _____ Date: _____

**Unit 21555: Demonstrate knowledge of weeds and their control.
(Assessor copy)**

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Element 2 Describe methods of weed prevention and control, and the relationship between weed control and plant life cycles.	Yes/No	<ul style="list-style-type: none"> ▪ Describe weed prevention and control in terms of the methods used. Range: methods – biological, chemical, cultural, physical, legal. ▪ Describe the implications of weed prevention and control, in relation to each stage of the plant life cycle. Range: life cycles – annual, biennial, ephemeral; perennial – herbaceous, woody.

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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 21555: Demonstrate knowledge of weeds and their control.

(Name of Apprentice)

is Competent in Unit Standard 21555. (version 1)

Signed (Assessor):

WPA Registration Number: _____

Date: _____

Demonstrate Knowledge of Weeds and their Control

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. PART A is a CLOSED book assessment (although students may have access to weed identification books), PART B is a research project. You must complete both parts to achieve the standard.

Student To Complete:

Student Name:	
Address:	
Date Handed In:	
Declaration:	This assessment is all my own work (Your signature)

Assessor To Complete:

Course Number/Name:	
Standard Achieved: Part A	Yes / No
Part B	Yes / No
Overall Unit	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:	

Demonstrate Knowledge of Weeds and their Control

Unit 21555

Level 2

Credits 4

PART A: Closed Book Assessment

IDENTIFY WEEDS AND THE WAYS THEY SURVIVE AND SPREAD

1. Provide a brief definition of a weed AND give an example of a situation where a plant is desirable in one land use and a weed in another.

2. For _____ industry/situation specified by the assessor describe at least three (3) detrimental effects of weeds.

i. _____

ii. _____

iii. _____

3. Plants have adapted to improve their chances of survival by using various means. Using the two (2) supplied weeds as examples describe how each plant has adapted for survival using the following headings (where applicable): -

Weed 1 (specify): -

- i. Physical Defences

ii. Chemical defences

iii. Plant vigour

iv. Root system

v. Reproduction

vi. Plant life cycle

Weed 2 (specify): -

vii. Physical Defences

viii. Chemical defences

ix. Plant vigour

x. Root system

xi. Reproduction

xii. Plant life cycle

4. Name using common name only the 20 weeds on display. (You must get at least 15 of these correct to attain the standard).

Plant Number	Common Name of plant

ii. Chemical

iii. Cultural

iv. Physical

6. (a) If a weed is classed as “total control” what does this mean?

Give an example of a total control weed in your region.

(b) If a weed is classed as a “containment weed” what does this mean?

Give an example of a containment weed in your region.

PART B: REASERCH PROJECT

Choose a plant from each life cycle type and describe life cycle and control methods.

Life Cycle Type	Example Plants
Annual (including short-term ephemeral species)	Annual poa, Black Nightshade, Fathen, Redroot
Biennial	Scotch Thistle, Nodding thistle, Ragwort,
Leafy perennial plants	White clover, kikuyu, Californian thistle, Penny Royal, Creeping Oxalis, Wandering Jew
Woody perennial plants	Gorse, Woolly Nightshade, Broom

7. For each weed you have chosen describe (or draw) the life cycle.

Hints:

Be sure you include the timeframe of when things happen and for completion of the cycle. (when flowers are produced, when roots are most active, when leaf growth is dominant, when seeds are produced and germinate).

8. For each weed you have chosen describe suitable control methods.

Hints:

- Make sure that your discussion includes biological, chemical and physical control methods for each weed . Describe the types of control, when it should be done (or not done), what should be done and for chemical include the types of herbicide that could be used and when.
- The timing of the control methods is related to various stages in the life-cycle.

MARKING SCHEDULE

Demonstrate Knowledge of Weeds and their Control

Unit 21555

Level 2

Credits 4

Notes to Assessors: -

- The closed book assessment can largely be undertaken orally if required.
- Assessors will need to specify the industry or field for question 2 prior to the start of the assessment.
- Assessors will need to provide two plant types for question 3 that show a range of plant adaptation and dispersal characteristics as well as differing life cycle types. Note if the range cannot be covered with two plants then increase the number of plants so that the range can be covered. Actual plants or photographs can be used for this question.
- Twenty different plants will be required for question 4. It is suggested these be actual plants not dried or photographed plants. A weedlist of common names can be found on the RNZIH website: www.rnzih.org.nz/pages/weednamelist.htm
- Regional councils maintain data about Total control and containment weeds – see the regional pest management strategy on most regional council websites.
- PART B is an open book project which can be done at home. It should be separated from the rest of the assessment until completed. Tutors should substitute weeds in the table to suit their industry and/or region.

ALTERNATIVE ASSESSMENT IDEAS: -

- Part B could include plant/photo collection and remove question 4 from part A

Question	Element or PC	Evidence	Judgement
1	1.1	Weed is an unwanted plant in any given situation. A desired plant in one situation may be a weed in another (e.g. white clover in pasture is desired, in horticulture it is a weed; pinus radiata is a desired plant in forestry plantation but in native plant areas is a weed; Kiwifruit is a desired plant in horticulture but is a strangling plant in native forest)	Description of a weed is stated (written or oral), with italicised words mentioned (or similar). One example is given of a situation where a plant is desirable in one location and a weed in another.
2	1.1	Detrimental effects described (written or oral) e.g. <ul style="list-style-type: none"> • smothering of desirable plants • Competition for light, air and nutrients, • Clogging waterways • Taint or poison livestock or products • Cost of control etc...	3 detrimental effects of weeds are stated for a specified land based industry.
4	1.2	Weeds identified by sight. (Assessor provides range of plants for candidates to identify)	At least 15/20 common weeds of the district and industry are correctly identified by common name.

Question	Element or PC	Evidence	Judgement
3	1.3	<p>Two plants (provided by assessor) are described in terms of how they are adapted for survival and dispersal and what makes them a successful weed.</p> <p>Physical defenses: include thorns, prickles, spines, stolons, rhizomes, suckers, creepers etc Chemical defenses: include smell, poisons (won't be valid for all plants) Plant Vigour: includes rapid growth from seedling, smothering, stolons, rhizomes</p> <p>Root system includes: deep tap roots, rhizomes, stolons</p> <p>Reproduction: includes producing lots of seed, dispersal of seeds by wind, animals, equipment etc.</p> <p>Plant life cycle: Annual plants can lie dormant when climatic conditions are not right and then grow rapidly from seed to take advantage of suitable conditions. Perennial plants can survive from rootstock and will continue to grow and colonise areas from vegetative growth.</p>	<p>Between the two plant types on offer the candidate discusses: - Physical defences, Chemical defenses, Plant vigour, Root system, Reproduction methods, and plant life cycle in terms of how they aid survival. Note not all will be covered for both plants but must cover the range between the two plants.</p>
7	1.4	<p>Plant life cycle is given (written or pictorial) for chosen weed from each category: Annual(Includes ephemeral) Biennial Herbacious perennial Woody Perennial (See notes attached)</p>	<p>4 life cycle types are described including timeframe for completion of life cycle, when flowers are produced, when seed is produced, when vegetative growth happens.</p>
6	2.1	<p>Written or oral statements about types of weeds that must be controlled by law/regulation. Total control plant pests cannot be sold, propagated or put on display. Usually the regional council takes responsibility for the control of these weeds. These weeds will be of high national or regional significance, or may be prevalent in forest areas. Containment plants are weeds that must be controlled by landowners (either to stop altogether or contain within their boundaries)</p>	<p>2 types of weeds that must be controlled by regulation are stated (italicised words mentioned). If suitable weed examples were given for each type that could be considered sufficient evidence (check weeds with regional council data)..</p>

Question	Element or PC	Evidence	Judgement
5	2.1	<p>Biological Control: using another organism to destroy or control the weed.</p> <p>Chemical control: Using herbicides or other chemicals that are absorbed by the plants to kill the weed. May be contact chemical or translocated chemical.</p> <p>Physical Control: Applying mechanisation or manual methods to control weeds. Eg ploughing, topping, grubbing, pulling, etc.</p> <p>Cultural Control : is changing the environment so that it is less suitable for the growth of the particular weed. (eg changing the humidity in greenhouses, changing soil fertility or pH, drainage of wet areas etc, pasture management to retain thick sward etc).</p>	<p>Gives description that shows understanding of the different control methods. Words in italics are key words. May be backed up by example.</p>
8	2.2 2.1	<p>Methods of weed control for each of the weeds chosen in question 7 are stated (see notes attached) and timing in relation to the lifecycle is discussed</p>	<p>Weed control methods for the various weeds are valid. Timing is in relation to the stages in the life-cycle,</p>