

1

90924



909240



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

SUPERVISOR'S USE ONLY

Level 1 Agricultural and Horticultural Science, 2017

90924 Demonstrate knowledge of horticultural plant management practices and related plant physiology

9.30 a.m. Wednesday 22 November 2017

Credits: Five

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate knowledge of horticultural plant management practices and related plant physiology.	Demonstrate in-depth knowledge of horticultural plant management practices and related plant physiology.	Demonstrate comprehensive knowledge of horticultural plant management practices and related plant physiology.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–12 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

ASSESSOR'S USE ONLY

QUESTION ONE: NUTRIENTS

Different crops require different amounts of nutrients. The NPK ratio indicates the relative amounts of three macronutrients in a fertiliser.

- (a) Identify which macronutrients the three letters stand for, and describe the effect these have on plant growth.

	Macronutrient	Effect on growth
N		
P		
K		

- (b) Explain how nutrients are taken into plants. In your answer, consider plant structures and processes.

Turf managers maintain the grass on sports fields such as rugby and cricket grounds.



Source: <https://www.tvnz.co.nz/content/dam/images/news/2015/02/27/eden-park.jpg>

(c) When applying fertiliser to sports fields, turf managers have the option of using a slow release solid fertiliser or a liquid fertiliser. Compare and contrast the use of slow release solid fertilisers with liquid fertilisers on a sports field turf.

In your answer, consider:

- why a sports field turf needs fertiliser
- how liquid and solid fertilisers can be applied
- the effectiveness of each fertiliser.

More space for this answer is available on the next page.

QUESTION TWO: VEGETABLE GARDENS

Cultivation is carried out for many reasons, including soil aeration and weed control.



Source: <https://s-media-cache-ak0.pinimg.com/originals/88/a0/7b/88a07bea5e235b949d19352e3e282444.jpg>

- (a) Soil needs to be aerated to aid in the process of plant root respiration. Explain why plants need to carry out respiration.

In your answer, include the word equation for respiration.

Word equation: _____

- (b) When planting out seedlings, correct spacing between plants is important. Explain how the spacing between plants will affect plant processes and growth.

A gardener has the choice of using either manual weed control or a herbicide to control weeds in their home vegetable garden.

ASSESSOR'S
USE ONLY

- (c) Select the better management practice for the gardener to choose, and justify your selection by comparing and contrasting it with the other method.

Selected weed control method: _____

In your answer, consider:

- how each practice is carried out
- the effect weeds have on the growing conditions of garden plants
- the effect the weed control practices have on non-target plants.

QUESTION THREE: AVOCADO ORCHARDS

Source: https://bayleys-pri-images-cdn-endpoint.azureedge.net/listing-ges/1812124/1812124_1.jpg

When avocado trees are first planted, they should be staked.

- (a) Describe THREE actions that should be taken when staking an avocado tree, and explain why each of these actions is carried out.

Action	Explanation

- (b) Describe ONE other management practice an orchardist could carry out when first planting an avocado tree, and explain how this would affect the tree's growth.

An avocado grower is planning to extend their orchard into a neighbouring paddock. The orchardist has the option of building an artificial shelter belt, or planting a natural shelter belt around the outside of the new paddock.

- (c) Select the better type of shelter belt for the orchardist to use, and justify your answer by comparing and contrasting your selected shelter belt with the other option.

Selected type of shelter belt: _____

In your answer, consider:

- how shelter changes the growing conditions of avocado trees
- how this change in growing conditions affects plant growth
- the effectiveness of the shelter.

More space for this answer is available on the next page.

