

91290



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SUPERVISOR'S USE ONLY

Level 2 Agricultural and Horticultural Science, 2019

91290 Demonstrate understanding of techniques used to modify physical factors of the environment for NZ plant production

2.00 p.m. Monday 25 November 2019
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of techniques used to modify physical factors of the environment for commercial plant production in New Zealand.	Demonstrate in-depth understanding of techniques used to modify physical factors of the environment for commercial plant production in New Zealand.	Demonstrate comprehensive understanding of techniques used to modify physical factors of the environment for commercial plant production in New Zealand.

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: LIGHTASSESSOR'S
USE ONLY

Growers can use artificial light sources to improve the intensity and quality of light provided to plants.



Gerberas under LEDs

- (a) Describe another method growers can use to increase the intensity of light provided to plants.

- (b) Explain how the use of LED lighting can improve the quality of light provided to plants, and how this affects crop yield.

- In your answer, consider the economic impacts in terms of the quality and production timing of the cut flowers.

Agricultural and Horticultural Science 91290, 2019

QUESTION TWO: SHELTERBELTSASSESSOR'S
USE ONLY

Kiwifruit need shelter in spring when the young stems are actively growing, and in autumn when the berries are swelling.



Kiwifruit shelterbelts

(a) Describe two attributes of an effective shelterbelt.

- (1) _____

- (2) _____

- In your answer:

- describe how shelterbelts modify the growing environment for kiwifruit
- explain how shelterbelts can affect crop quality and production timing
- justify the use of shelterbelts in terms of economic and environmental impacts.

QUESTION THREE: WATER USAGEASSESSOR'S
USE ONLY

- (a) Describe two ways in which growers can modify the environment to reduce water usage when growing crops.

(1)

(2)

Both overhead sprinklers and drip irrigation systems are common in Central Otago cherry orchards.

- (b) Explain how irrigation systems can modify the orchard and wider environment, and justify the use of irrigation for growing cherries in Central Otago in terms of crop quality and yield.

In your answer, consider environmental, economic, and social impacts.

Extra space if required.
Write the question number(s) if applicable.

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Acknowledgements

Material from the following sources have been used in this examination:

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Image: <http://2.bp.blogspot.com/-31ZzTx1Zx4k/T-4EmzwdDtl/AAAAAAAAAAsk/wYvifoUx-pw/s1600/Gerbera+under+LEDs.jpg>.

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Image: https://www.nzgeo.com/wp-content/uploads/1970/01/71_KiwiJackpot_bodyimage-1600x665.jpg