

91290



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SUPERVISOR'S USE ONLY

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# Level 2 Agricultural and Horticultural Science 2021

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

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.

Do not write in any cross-hatched area (✂). This area may be cut off when the booklet is marked.

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

**QUESTION ONE: Airflow**



Ryegrass / white clover pastures

Apple orchard

- (a) (i) Name an **outdoor** plant production system, and describe TWO management practices used to modify airflow.

Outdoor plant production system: \_\_\_\_\_

Management practice 1: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Management practice 2: \_\_\_\_\_

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(ii) Explain the effect each practice has on production.

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(b) Consider the economic and social impacts of ONE management practice from part (a). Justify its use, with reference to **quality** and **timing**.

Selected management practice: \_\_\_\_\_

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*There is more room for your answer on the next page ➤*



**QUESTION TWO: Excess water**



A paddock submerged due to the rising water table.

- (a) (i) Describe TWO management practices used for managing excess water.

Management practice 1: \_\_\_\_\_

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Management practice 2: \_\_\_\_\_

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(ii) Explain the effect each practice has on production.

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(b) Consider the economic and environmental impacts of ONE management practice from part (a). Justify its use, in terms of **yield** and **timing**.

Selected management practice: \_\_\_\_\_

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**QUESTION THREE: Glasshouses**

An extensive glasshouse operation producing capsicums for export and the domestic market.

- (a) (i) Describe TWO management practices a glasshouse grower can use to modify a plant's growing environment.

Management practice 1: \_\_\_\_\_

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Management practice 2: \_\_\_\_\_

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(ii) Explain the effect each practice has on plant production.

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(b) Consider the economic and environmental factors of ONE management practice from part (a). Justify its use, in terms of **crop yield** and **quality**.

Selected management practice: \_\_\_\_\_

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*There is more room for your answer on the next page ►*





**Acknowledgements**

Images from the following sources have been adapted for use in this examination:

**Page 2**

<https://www.dairynznewslink.co.nz/environment/tactical-use-of-nitrogen-fertiliser>

<https://www.greaterkashmir.com/news/business/jammu-and-kashmir-govt-to-insure-farm-production/>

**Page 5**

<https://blogs.lincoln.ac.nz/dryland/2014/02/14/resurrecting-a-mid-age-flood-damaged-lucerne-stand/>

**Page 8**

[https://www.rabobank.co.nz/hard-at-work/-/media/rabobank-nz/images/on%20page%20images/2019%20image%20refresh/gallery/tvc3\\_full.jpg](https://www.rabobank.co.nz/hard-at-work/-/media/rabobank-nz/images/on%20page%20images/2019%20image%20refresh/gallery/tvc3_full.jpg)