

91290



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

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

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SUPERVISOR'S USE ONLY

Tick this box if you  
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# Level 2 Agricultural and Horticultural Science 2022

## 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: Healthy soil**



- (a) Choose TWO techniques used to modify the physical properties of soil and explain the effect each technique has on plant growth in terms of crop yield and timing.

Technique 1: \_\_\_\_\_

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Technique 2: \_\_\_\_\_

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**QUESTION TWO: Frost**



(a) Choose TWO frost protection techniques and explain how each technique is carried out.

Technique 1: \_\_\_\_\_

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Technique 2: \_\_\_\_\_

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(b) How do frost protection techniques affect crop yield and quality?

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(c) Select ONE of the techniques from part (a) and discuss its use in terms of its social and environmental impact.

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**QUESTION THREE: Wind**

- (a) Choose TWO techniques that modify the environment to provide wind protection and explain how each technique affects crop quality and timing.

Technique 1: \_\_\_\_\_

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Technique 2: \_\_\_\_\_

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**Acknowledgements**

Material from the following sources has been adapted for use in this assessment:

**Page 2**

Image (soil): <https://www.waikatoregion.govt.nz/assets/Uploads/soil-v2.png>

**Page 4**

Image (hoar frost): <https://www.thenews.co.nz/wp-content/uploads/2019/07/co4hoarfrost11.jpg>

**Page 7**

Image (trees): [https://www.earthtouchnews.com/media/1947040/slope-point-trees-sheep\\_2016\\_10\\_31.jpg](https://www.earthtouchnews.com/media/1947040/slope-point-trees-sheep_2016_10_31.jpg)