

90919



Draw a cross through the box (X) if you have NOT written in this booklet

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Mana Tohu Mātauranga o Aotearoa

New Zealand Qualifications Authority

## Level 1 Agricultural and Horticultural Science 2023

### 90919 Demonstrate knowledge of soil management practices

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate knowledge of soil management practices.	Demonstrate in-depth knowledge of soil management practices.	Demonstrate comprehensive knowledge of soil management practices.

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 2–11 in the correct order and that none of these pages is blank.

Do not write in any cross-hatched area (DO NOT WRITE). This area will be cut off when the booklet is marked.

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

## QUESTION ONE: Irrigation

Irrigation is used in many agricultural and horticultural production systems, such as dairy farms and apple orchards. Due to the requirements of different production systems, a range of irrigation systems are used.



Image sources: (pivot irrigator) <https://thinkwatercanterbury.co.nz/news/which-irrigation-system-is-best-suited-to-your-farm>  
(lawn irrigator) <https://www.engledow.com/wp-content/uploads/2017/06/Irrigation.jpg>

Name a New Zealand agricultural OR horticultural production system.

Production system: \_\_\_\_\_

(a) How is irrigation carried out on your named production system?

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(b) (i) Explain the benefits of irrigation on biological and/or chemical properties of soil.

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Alternative irrigation system: \_\_\_\_\_

- physical, chemical, and/or biological properties of soil
- crop yield
- efficiency of the irrigation system.



## QUESTION TWO: Soils and nutrients

Soil testing is often carried out before applying fertiliser.

- (a) (i) How are soil tests carried out?

- (ii) How could a farmer use the information from a soil test to increase pasture growth?

- (b) With reference to their physical properties, explain why nutrients are applied differently to a sandy soil compared to a clay soil.

(c) Which of these two management practices would be best at increasing nutrient availability? Justify why you have chosen this method. In your answer, consider:

Crop rotation can be used by growers to improve soil quality and increase yield.







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

QUESTION  
NUMBER

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

QUESTION  
NUMBER

