

90919



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Level 1 Agricultural and Horticultural Science 2021

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 2–12 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: Dairy farming

Dairy farmers often apply fertiliser to their soil to improve plant growth.



Fertiliser granules

(a) Describe how fertiliser is applied to soil.

(b) Describe the best environmental conditions to apply fertiliser, and explain why these conditions are preferred.

During winter a farmer may choose to put supplementary feed, such as grass silage, on a feed pad rather than feeding out in the paddock.



Feed pad



Feeding out in paddock

(c) Justify a farmer’s decision to use a feed pad to protect the soil by comparing it with feeding out in paddocks.

In your answer consider:

- physical and biological properties of the soil
- impacts on plant growth (both short- and long-term).

Please turn over ►

QUESTION TWO: Soil texture and structure

Soil texture triangle



(a) What soil type is 30% clay, 20% silt, and 50% sand?

(b) Explain how a clay soil's texture affects the physical properties of the soil.



QUESTION THREE: Market gardens

Before a market gardener plants, the soil is cultivated.

- (a) Describe a cultivation method suitable for a large crop. Explain why cultivation is done before planting.

Some crops, such as strawberries, are planted on mounds.



Strawberry farm

- (b) Explain why growers plant crops in this way.

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

**QUESTION
NUMBER**

Lined response area with horizontal lines for text entry and a vertical line for question numbers.

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

QUESTION
NUMBER

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Acknowledgements

Content from the following sources has been adapted for use in this examination:

Page 2

Fertiliser granules (photo) <http://dickiedirect.co.nz/product/ddphos/>

Page 3

Feed pad (photo) <https://www.donchapmanwaikato.co.nz/wp-content/uploads/2020/10/Feedpad-MKSM-2-1024x575.jpg>

Feeding out (photo) <https://www.dairynz.co.nz/feed/feed-management-tools/>

Page 5

Soil texture triangle (image) https://thinkingcountry.files.wordpress.com/2016/11/1067px-soiltexture_usda.png

Page 8

Strawberry farmer (photo) <https://mesquite-news.com/poteet-strawberry-farmer-persists-through-drought/>