

90919



Tick this box if you have NOT written in this booklet

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.

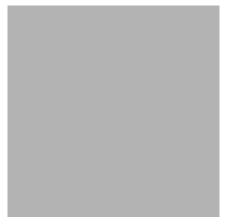
Check that this booklet has pages 2–12 in the correct order and that none of these pages is blank.

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.			

Durii rathe	ng winter a farmer may choose to put supplementary feed, such as grass silage, on a feed pader 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

What soil	type is 30% clay, 20%	silt, and 50% sa	nd?		
Explain h	ow a clay soil's texture	affects the physi	cal properties of	the soil.	

Compacted soils tend to have poor soil structure. One method a grower may use to prevent over-compaction is avoiding the use of heavy machinery.

(c)

com	nparing and contrasting it with avoiding the use of heavy machinery.
Met	:hod:
In v	our answer consider:
•	how each method is carried out
•	
	the physical properties of soil
•	plant growing processes.

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.
Som	e crops, such as strawberries, are planted on mounds.
50111	e crops, such as strawberries, are planted on mounds.
	Strawberry farm
(b)	Explain why growers plant crops in this way.

Sandy soils often have poor plant growth, particularly in summer. To improve water availability, growers have two options: irrigation or adding compost.

(c)	Justify why a grower would choose to add compost rather than irrigate to improve water availability.				
	In your answer consider:				
	soil properties				
	water availability				
	plant growing processes.				

Please turn over ➤

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

QUESTION NUMBER	Write the question number (s) if applicable.	
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QUESTION NUMBER	write the question number(o) if applicable.	
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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/