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NEW ZEALAND QUALIFICATIONS AUTHORITY
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QUALIFY FOR THE FUTURE WORLD
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SUPERVISOR'S USE ONLY

Level 1 Agricultural and Horticultural Science, 2016

90919 Demonstrate knowledge of soil management practices

2.00 p.m. Monday 14 November 2016
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 2–8 in the correct order and that none of these pages is blank.

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

TOTAL

ASSESSOR'S USE ONLY

QUESTION ONE: PASTURE GROWTH

For maximum pasture growth, soil needs both nutrients and healthy living organisms.

Beneficial soil organisms



Source: <http://esdac.jrc.ec.europa.eu/themes/soil-biodiversity>

(b) Explain TWO ways in which soil organisms can influence soil properties and soil structure.

(1) _____

(2) _____

(c) After a soil test was carried out on a dairy farm's paddocks, it was recommended that in order to increase pasture growth, lime should be applied to the soil before adding fertiliser.

(i) Describe why lime application would have been recommended.

(ii) Justify why lime should be applied to this pasture before using fertilisers. In your answer, explain the effect that lime has on soil properties and on plant growth.



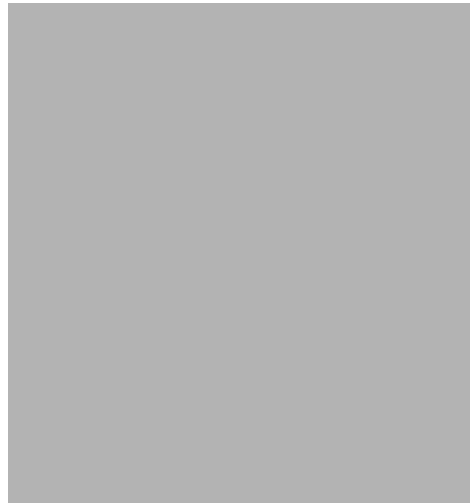
QUESTION TWO: SOIL TYPESASSESSOR'S
USE ONLY**Soil Triangle**Source: <http://upload.wikimedia.org/wikipedia/commons/>

Soils are commonly classified by their proportions of sand, silt, and clay.

- (a) Describe the difference in particle and pore sizes of clay and sand. Explain how these differences can affect the water-holding capacity and temperature of these two soils.

- (b) A gardener discovers that they have a sandy loam soil in their vegetable patch.

- (i) Describe sandy loam soil properties.

QUESTION THREE: SOIL PROFILE**Soil profile (showing depths in cm)**

Source: <http://seeresults.ballance.co.nz/>

A soil profile can be useful to farmers.

- (a) Describe THREE soil properties that a soil profile might show a farmer about their soil. For each of these properties, describe a soil management practice that could be carried out to improve pasture growing conditions.

Soil property	Management practice

- (b) Explain how cultivation can affect the soil profile and the pore spaces within the soil.

(c) While carrying out a soil profile, a farmer discovers that there is poor drainage in some areas of one of their paddocks.

(i) Describe and explain the effects poor drainage could have on soil properties and pasture growth.

(ii) Suggest a soil management practice that the farmer could use to address the poor drainage. Justify your selection by comparing and contrasting it with another soil management practice that could also address the poor drainage.



