

90919



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

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SUPERVISOR'S USE ONLY

Level 1 Agricultural and Horticultural Science, 2012

90919 Demonstrate knowledge of soil management practices

9.30 am Tuesday 20 November 2012

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.

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

TOTAL

ASSESSOR'S USE ONLY

You are advised to spend 60 minutes answering the questions in this booklet.

QUESTION ONE: DRAINAGE

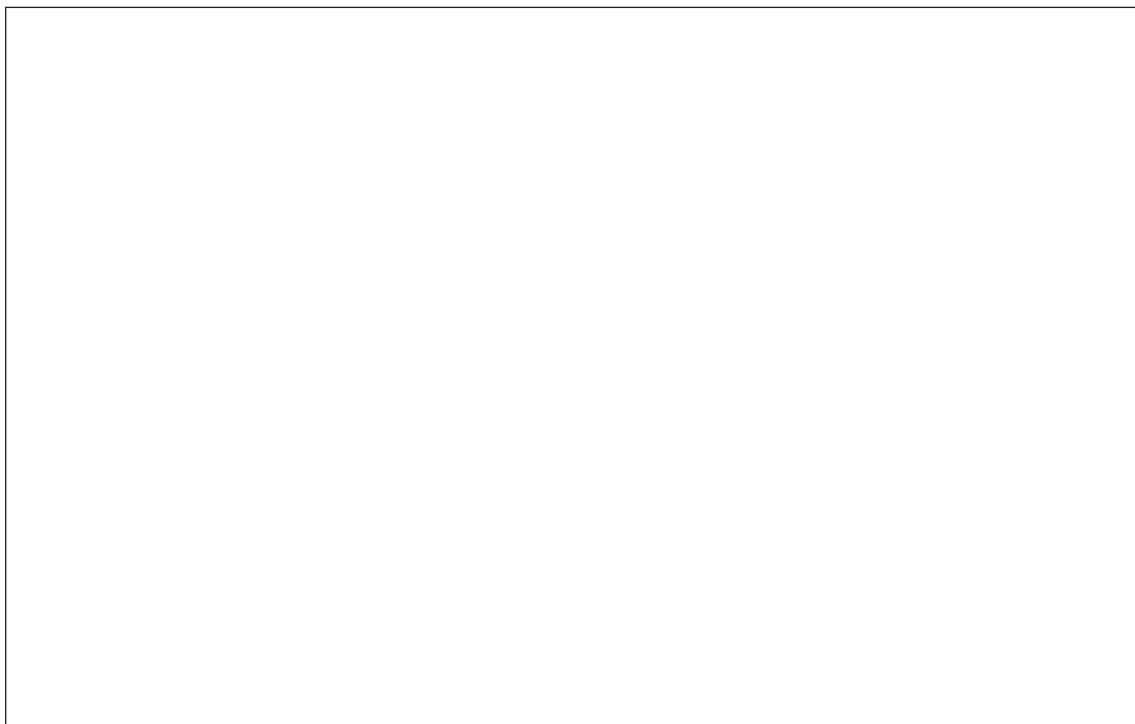
A farmer has a large, flat paddock, and water pools on the surface after heavy rainfall. This has caused poor pasture growth.

Waterlogged paddock



Source: paulinespaddock.blogspot.com

- (a) It has been suggested that an underground pipe drainage system be installed.
- (i) Use the box below to draw and label a cross section of how an underground pipe drainage system would look once it has been installed.



- (ii) Explain how each labelled part in your diagram helps to make the drain work effectively.

- (b) Explain how drainage will improve the plant growth in this paddock.
In your answer, you could consider:

- soil air and soil water
- soil temperature.

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The examination continues on the following page.**

QUESTION TWO: GARDEN VEGETABLE PLOT

A garden vegetable plot needs careful management in order to produce high-quality crops. One of the management practices recommended is irrigation.

(a) Explain why growers would irrigate their crops.

In your answer, you could consider:

- the physical and chemical properties of soil
- the growing conditions required for the plant.

(b) In order to utilise garden waste, the grower has decided to make compost. Describe THREE actions to carry out when making compost, and explain why each action should be carried out in the way you have described. You may use labelled diagrams.

Description of the Action	Explanation of the Action
Action 1	
Action 2	
Action 3	

(c) The grower wants to increase the production of the garden plot. A friend has suggested that they apply either compost or fertiliser to their garden.

Select the better management practice to increase production. Justify your selection by **comparing and contrasting** it with the other management practice.

In your answer, you could consider:

- nutrient levels for each method
- biological properties.

Selected management practice: _____



QUESTION THREE: CULTIVATION

(a) Cultivation is regularly carried out on both small-scale and large-scale growing operations.

(i) Describe how cultivation is carried out.

(ii) Explain the effect on soil properties, and how these influence plant growth.

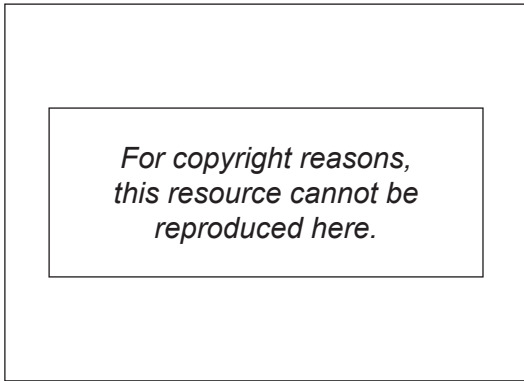
There are a variety of management practices used to sow seed into the ground. A farmer plans to sow pasture seed, and has been given the choice of either using a direct drill or ploughing the paddock to create a seedbed. These methods are shown in the photographs below.

Direct drilling



Source: <http://www.agricomm.co.uk/>

Ploughing a seedbed



Source: <http://www.rg-contracting.co.uk/id21.html>

(b) Select the better management practice for sowing seeds. Justify your selection by **comparing and contrasting** it with the other management practice.

In your answer, you could consider:

- physical and biological properties of soil
- germination and seedling emergence.

Selected management practice: _____

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