

SUPERVISOR'S USE ONLY

90919



Level 1 Agricultural and Horticultural Science, 2017

90919 Demonstrate knowledge of soil management practices

9.30 a.m. Wednesday 22 November 2017 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

		2	
QUE	STION ONE	: SOIL COMPACTION	ASSESSOR'S USE ONLY
		Source: https://www.agric.wa.gov.au/sites/gateway/files/Billies_good	
		%20germination%20but%20poor%20in%20wheel%20tracks%20(1)_	D.JPG/
		s a common cause of soil compaction in agriculture. O methods a farmer might use to prevent soil compaction.	
()			
	Method 1		
	Method 2		
/I- \	D :: T\\ 1/2		facil and audicin
		O impacts soil compaction has on the physical properties cects plant growth.	f soil, and explain
	Impact	Effect on physical properties Effect o	n plant growth

3 Farmers have the option of using a ripper to reduce the damage caused by soil compaction. ASSESSOR'S USE ONLY (c) Justify the use of a ripper to reduce soil compaction damage. In your answer: describe how a farmer would use a ripper consider and discuss the effect on the physical, chemical, and biological properties of soil.

QUESTION TWO: PRECISION AGRICULTURE

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Different soil types have different properties.

(b)

(a) Describe the drainage and nutrient retention of the three soil types listed below.

Soil type	Drainage	Nutrient retention
Sand		
Silt		
Clay		

Soil map of a farm

Source: https://zoner.bayer.com/static/H4zStdSxLEe27Xs2IDW 1VZTEQCE4azjUd4T3RTmvjHm.jpg

Describe what soil properties a soil map could show a grower about their land, and explain how they might use this information to increase productivity.		

Direct drilling, where the seed is drilled into unploughed soil, has become a common method of ASSESSOR'S USE ONLY sowing crop seeds such as wheat or barley. Justify the use of direct drilling by comparing and contrasting direct drilling with cultivating (c) and then sowing the seeds. In your answer, consider: effects on soil properties and the environment effects on germination and plant growth.

QUESTION THREE: GARDENS

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(a) Describe THREE actions taken to produce compost, and explain why each of these actions is taken.

Action	Explanation
	ı

(b)	Explain the effect compost has on soil properties.

Root vegetables	Legumes	Brassicas and salads	Potato family
Carrots	Peas	Broccoli	Potato
Beetroot	Beans	Cauliflower	Tomato
Parsnips		Cabbage	Eggplant
		Kale	

(c) Market gardeners rotate their crops on a seasonal basis. Using the crops in the table above, suggest a four-year crop rotation plan.

	Crop		
Year	Area 1	Area 2	Area 3
1			
2			
3			
4			

Justify your crop rotation plan. In your answer: explain why crop rotation is necessary		ASSESSOR'S USE ONLY
•	consider the effect on the biological, chemical, and physical properties of soil.	
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	Extra space if required.	
	Write the question number(s) if applicable.	
QUESTION NUMBER	(-)	