



2004
HIGHER SCHOOL CERTIFICATE
EXAMINATION

--	--	--	--	--

Centre Number

--	--	--	--	--	--	--	--	--	--

Student Number

Agriculture

Paper 1

General Instructions

- Reading time – 5 minutes
- Working time – 2 hours
- Write using black or blue pen
- Draw diagrams using pencil
- Board-approved calculators may be used
- Write your Centre Number and Student Number at the top of this page and page 9

Total marks – 70

Section I Pages 2–6

25 marks

- Attempt Questions 1–3
- Allow about 40 minutes for this section

Section II Pages 9–13

30 marks

- Attempt Questions 4–5
- Allow about 50 minutes for this section

Section III Pages 17–18

15 marks

- Attempt ONE question from Questions 6–9
- Allow about 30 minutes for this section

Section I

25 marks

Attempt Questions 1–3

Allow about 40 minutes for this section

Answer the questions in the spaces provided.

Marks

Question 1 (10 marks)

Name ONE farm product you have studied.

Name of product

For the farm product you have named:

(a) State ONE measure of production. 1

.....

(b) Outline ONE on-farm management practice that improves the quality of the named product. 2

.....
.....
.....
.....

(c) Explain how ONE off-farm factor can affect the quality of the named product. 3

.....
.....
.....
.....
.....
.....

Question 1 continues on page 3

Question 1 (continued)

- (d) Explain how processing of the named product can increase its value. **4**

.....

.....

.....

.....

.....

.....

.....

.....

End of Question 1

Please turn over

Question 2 (6 marks)

Figure 1 shows the area planted to chickpeas and the total production of chickpeas in Australia.

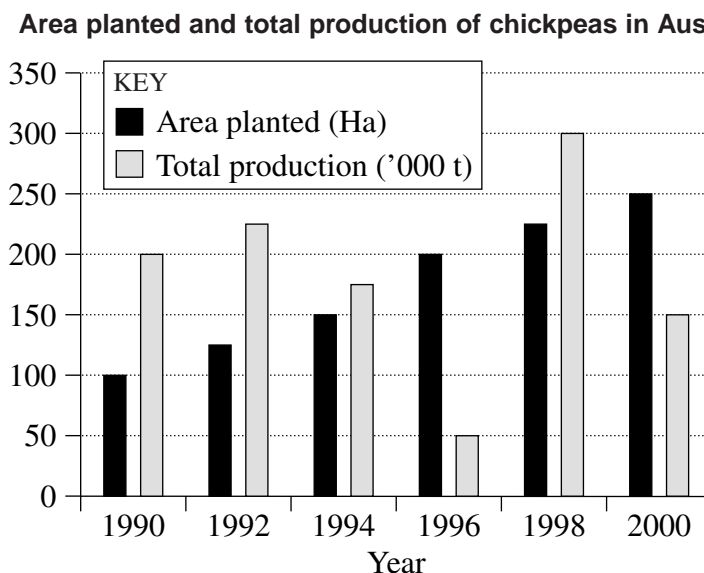


Figure 1

- (a) Identify the trend for the area planted to chickpeas shown in Figure 1. **1**

.....

.....

- (b) Describe ONE factor that may account for the changes in total production of chickpeas shown in Figure 1. **2**

.....

.....

.....

- (c) Explain how changing levels of production may affect rural communities. **3**

.....

.....

.....

.....

.....

.....

Question 3 (9 marks)

You have been asked to conduct a trial to determine the effect of different rates of nitrogen fertiliser on wheat yield in your district.

The trial involves testing the effects of 20 kg and 40 kg of nitrogen per hectare.

A 9 m × 9 m plot is available for the trial.

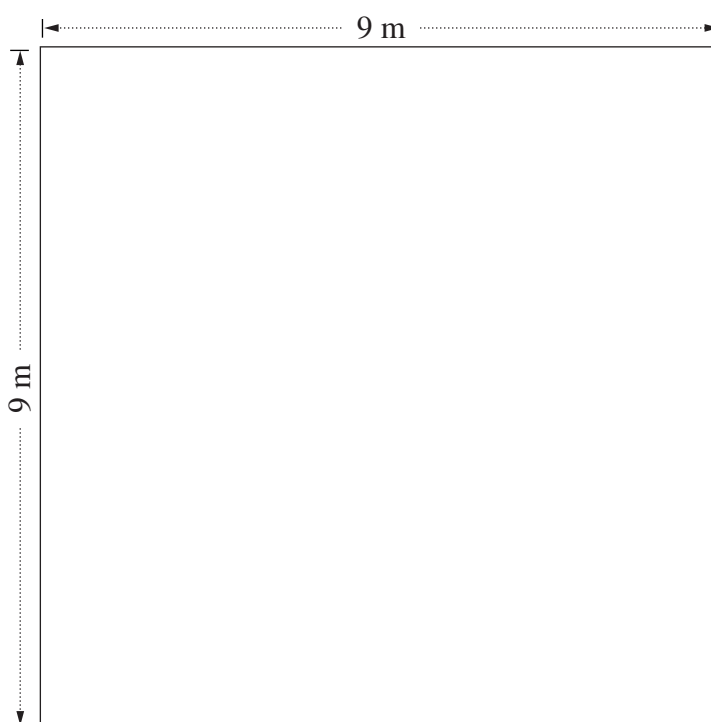
- (a) State a suitable application rate of nitrogen you could use as a control in this trial. **1**

.....
.....

- (b) Outline the role of a control in this trial. **2**

.....
.....
.....
.....

- (c) Illustrate on the diagram below how you would set up this trial using randomisation and replication. **2**



Question 3 continues on page 6

Question 3 (continued)

- (d) Justify TWO further investigations that could be done before recommending a nitrogen fertiliser rate for the district. **4**

.....

.....

.....

.....

.....

.....

.....

.....

End of Question 3

BLANK PAGE

BLANK PAGE

--	--	--	--	--

Centre Number

Section II

--	--	--	--	--	--	--	--	--

Student Number

30 marks

Attempt Questions 4–5

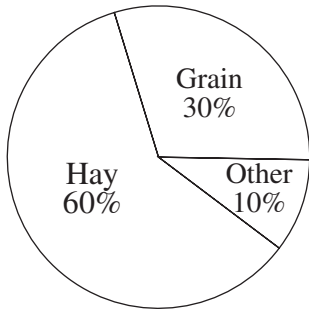
Allow about 50 minutes for this section

Answer the questions in the spaces provided.

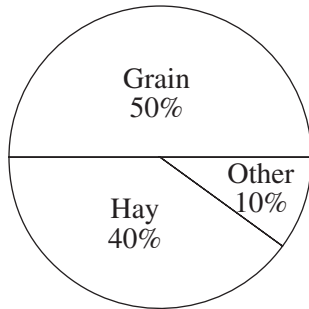
Marks

Question 4 (15 marks)

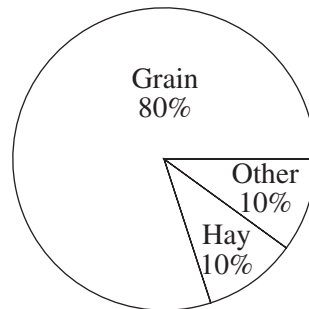
When cattle first arrived in a feedlot they were fed a starter ration. Progressively they were fed an intermediate ration and then fed a finisher ration.



Starter ration



Intermediate ration



Finisher ration

- (a) Identify the changes that occur in the composition of the ration from the starter ration through to the finisher ration. 2

.....

.....

.....

- (b) Describe a feature of cattle that enables them to use hay as a feed source. 2

.....

.....

.....

.....

Question 4 continues on page 10

Question 4 (continued)

- (c) Explain why cattle were not fed ‘finisher’ ration when first introduced into the feedlot. **3**

.....
.....
.....
.....
.....
.....
.....
.....

- (d) Explain, for a named animal production system, ONE practice used to manage nutritional requirements within the production cycle. **3**

.....
.....
.....
.....
.....
.....
.....
.....

Question 4 continues on page 11

Question 4 (continued)

- (e) Evaluate the use of native and introduced pasture species in providing
 - pastures to meet production goals
 - long-term sustainable pasture.

5

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

End of Question 4

Question 5 (15 marks)

- (a) List FOUR soil nutrients needed for normal plant growth. **2**

.....
.....

- (b) Explain, using an example, how ONE factor may affect the availability of a soil nutrient for plant growth. **3**

.....
.....
.....
.....
.....
.....

- (c) Discuss TWO organic methods of improving soil fertility. **6**

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Question 5 continues on page 13

Question 5 (continued)

- (d) Explain, using a plant production system you have studied, how the manipulation of the genes has affected plant production OR product quality. **4**

.....

.....

.....

.....

.....

.....

.....

.....

End of Question 5

BLANK PAGE

BLANK PAGE

BLANK PAGE

Agriculture

Section III

15 marks

Attempt ONE question from Questions 6–9

Allow about 30 minutes for this section

Answer the question in a writing booklet. Extra writing booklets are available.

	Marks
Question 6 (15 marks)	
(a) Describe the effect of THREE environmental factors on a plant production system you have studied.	5
(b) For EACH of these environmental factors:	10
• explain ONE management strategy farmers use to modify the impact of the factor	
• discuss the effectiveness of these management strategies on plant production.	

OR

Question 7 (15 marks)	
(a) Describe THREE factors that impact on the profitability of a farm business.	5
(b) For EACH of these factors:	10
• explain how the farm manager's decisions can address the factor to maintain profitability	
• discuss how these decisions may affect the long-term sustainability of the farm.	

OR

Please turn over

Question 8 (15 marks)

For an animal production system you have studied:

- (a) Describe changes in consumer preferences related to production and/or products from this animal industry. **5**
- (b) Explain **THREE** management strategies the farmers and/or the industry have put in place to meet these changed consumer preferences. **10**

Discuss the legal and/or ethical issues that farmers and the industry need to address in the production and marketing chain that have arisen due to consumer preferences.

OR

Question 9 (15 marks)

- (a) Describe **THREE** examples of technological innovations in production systems you have studied. **5**
- (b) For **EACH** of these innovations: **10**
- explain how the innovation has assisted farmers to meet marketing or production goals
 - discuss the issues associated with the implementation of each innovation in agricultural systems.

End of paper