

MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

TONGA NATIONAL FORM SEVEN CERTIFICATE

2018

AGRICULTURAL SCIENCE

QUESTION and ANSWER BOOKLET

Time allowed: 3 Hours

INSTRUCTIONS:

1. Write your **Student Enrolment Number (SEN)** on the top right hand corner of this booklet.
2. This paper consists of **FOUR QUESTIONS** and is out of 70 Skill Level.

SECTION	TOPICS	Total Skill Level
A	PRIMARY PRODUCTION	13
B	SUSTAINABLE PRIMARY PRODUCTION	17
C	PRODUCTION MANAGEMENT	20
D	POST-HARVEST	20
	TOTAL	70 Scores

3. Answer ALL QUESTIONS. Write your answers in the spaces provided in this booklet.
4. Use a **BLUE** or **BLACK** ball point pen only for writing.
5. If you need more space for answers, ask the Supervisor for extra paper. Write your **Student Enrolment Number (SEN)** on all extra sheets used and clearly number the questions. Attach the extra sheets at the appropriate places in this booklet.
6. Check that this booklet contains pages **2-15** in the correct order and that pages 14-15 has been deliberately left blank.

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

PART A: PRIMARY MANAGEMENT**Question One: Factor influencing Primary Production**

Select a locally produced Primary Product. Answer all **Question One** using the Primary Product you have selected.

Name of primary product: _____

- a. Define aggregate demand.

Skill level 1	
1	
0	
NR	

- b. Describe a method of promoting your chosen product.

Skill level 2	
2	
1	
0	
NR	

Four factors which affect the production of farm animals and crops are listed in the box below.

- | | |
|------------|------------------------|
| 1. Weather | 3. Available equipment |
| 2. Pest | 4. Culture |

- c. Choose **ONE** (1) factor from the box and **explain** a way that the selected factor affects the production of a primary product produced locally.

Factor: _____

Explanation: _____

Skill level 3	
3	
2	
1	
0	
NR	

Question Two: The effect of market control

- a. Market controls are seen as barriers to the marketing of local and export products. Explain the role of P.I.C.T.A in the marketing of Primary Produce.

Skill level 3	
3	
2	
1	
0	
NR	

- b. Generalize the way in which a grower organization can manipulate a market.

Skill level 4	
4	
3	
2	
1	
0	
NR	

PART B: SUSTAINABLE PRIMARY PRODUCTION

Question One Analyzing Production Practices

a. Define organic farming.

Skill level 1	
1	
0	
NR	

Use the diagram below to answer part b. and c.



b. Name the type of cropping system shown in the picture.

Skill level 1	
1	
0	
NR	

c. Describe the advantages of the cropping system shown above.

Skill level 2	
2	
1	
0	
NR	

d. Describe a method of sustaining livestock production.

Skill level 2	
2	
1	
0	
NR	

e. Compare sustainable farming with organic farming.

Skill level 3	
3	
2	
1	
0	
NR	

Question Two**Sustainable Agriculture Issue**

In this Question you are required to choose a Primary product from the list below then use that product to answer part a. to part c.

- Squash Pumpkin
- Vanilla
- Kava
- Yam
- Beef
- Poultry
- Pork

Name of Primary Product: _____

a. Identify an issue related to production of your chosen Primary Product.

Skill level 1	
1	
0	
NR	

b. Describe the most sustainable way to control weed in your plantation or animal farm.

Skill level 2	
2	
1	
0	
NR	

c. List the main issue related to sustainable farming.

Skill level 2	
2	
1	
0	
NR	

Use the photograph below to answer part d.



- d. Examine the husbandry practices identified in the photograph, then explain a farming system that this farmer should adopt in order to sustain his production.

Skill level 3	
3	
2	
1	
0	
NR	

PART C: PRODUCTION MANAGEMENT

Select a locally produced animal. Answer all Parts of **Question One** using the animal you have selected.

Name of farm animal: _____

Question One Schedule of Operation

- a. Identify the steps that involves the schedule of operation for your selected animal.

Skill level 1	
1	
0	
NR	

- b. Describe the best way to control a named disease for your selected animal.

Skill level 2	
2	
1	
0	
NR	

- c. Explain the establishment process for your selected primary product.

Skill level 3	
3	
2	
1	
0	
NR	

Question Two**Factor affecting the schedule of operation**

Select a locally Produced crop. Answer all Parts of **Question Two** using the crop you have selected.

Name of crop: _____

- a. Identify a management skill that can increase production of your selected crop.

Skill level 1	
1	
0	
NR	

- b. Explain the production process of your selected crop.

Skill level 3	
3	
2	
1	
0	
NR	

- c. Select **ONE** (1) **factor** that can influence the schedule of operations the most. **Evaluate** how the factor can influence the schedule of operations of your selected crop. Use an example, units and values where appropriate to help explain your answer.

Factors that influence the schedule of operations on a livestock farm:

- | | |
|----------------------|-------------------------|
| 1. Land availability | 4. Yield |
| 2. Capital | 5. Labour availability |
| 3. Market demand | 6. Technical assistance |
| | 7. Technology |

Factor: _____

Evaluation: _____

Skill level 4	
4	
3	
2	
1	
0	
NR	

Question Three**Product attributes and market opportunity**

Select **ONE** (1) local Primary Product produced for an export market and use this product to answer part a. to d.

Name of Primary Product: _____

Main export countries for this product: _____

a. Define product attribute.

Skill level 1	
1	
0	
NR	

b. Identify the consumer preference for a specific market.

Skill level 1	
1	
0	
NR	

c. In the table below, list **TWO** (2) market opportunities for your primary product.

Skill level 2	
2	
1	
0	
NR	

d. Choose **ONE** (1) market opportunity from the two you have listed below and, state **TWO** (2) different product attributes required for the market.

Market Opportunity	Attribute
1	
2	

Skill level 2	
2	
1	
0	
NR	

PART D:**POST HARVEST****Question One****Preparation for Market**

Vanilla as known to most consumers, is made from the **dried, full grown** but not totally ripened fruits. These fruits have the appearance of pods or beans. When harvested, they have no immediate flavour. The aroma only develops during the curing process. The **curing** of green vanilla beans is essential to obtain enzymatic reactions and the formation of aromatic compounds. In order to prevent splitting, the beans have to be 'killed' before they are fully mature.

- a. Describe the proper way of harvesting vanilla beans.

Skill level 2	
2	
1	
0	
NR	

- b. Describe the curing process of vanilla beans as mentioned in the paragraph above.

Skill level 2	
2	
1	
0	
NR	

- c. Discuss the selecting/grading criteria for vanilla beans.

Skill level 4	
4	
3	
2	
1	
0	
NR	

Question Two**Procedure involve in Post-Harvest**

The packaging of fresh and processed meat are usually manufactured materials such as paper or synthetic films. Practically all films used for meat packaging derives from synthetic “plastic” materials.

- a. Describe the importance of plastic as a packaging material for fresh and processed meat.

Skill level 2	
2	
1	
0	
NR	

- b. Meat such as beef and pork are sometimes graded according to their fat colour. Explain the acceptable fat colour that are required by customers.

Skill level 3	
3	
2	
1	
0	
NR	

Question Three**Procedure involve in Post-Harvest**

The picture indicates the logo and the brand name of Anchor milk from New Zealand.
Use the picture below to answer part a. to part c.



- a. Describe the importance of the logo and the brand name of a product.

Skill level 2	
2	
1	
0	
NR	

- b. The production of Anchor milk undergoes a process called Hazard Analysis Critical Control Point (HACCP). Describe the process of HACCP.

Skill level 2	
2	
1	
0	
NR	

- c. Explain the importance of food safety.

Skill level 3	
3	
2	
1	
0	
NR	

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