

MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

TONGA NATIONAL FORM SEVEN CERTIFICATE

2020

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 page.
2. This paper consists of **THREE SECTIONS** and is out of 70 weighted scores.

SECTION	TOPICS	TOTAL SKILL LEVEL
A	PRIMARY PRODUCTION	21
B	SUSTAINABLE PRIMARY PRODUCTION	25
C	PRODUCTION MANAGEMENT	24
TOTAL		70

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. Use a pencil for drawing if required.
5. If you need more space for answers, ask the supervisor for extra paper. Write your **Student Enrolment Number (SEN)** on each additional sheet, number the questions clearly and insert them in the appropriate places in this booklet.
6. Check that this booklet contain pages **2-15** in the correct order and that page 15 have been deliberately left blank.

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR BEFORE YOU LEAVE THE EXAMINATION ROOM.

SECTION A:**PRIMARY PRODUCTION****Question One: What is Produced**

Select **ONE** local primary product produced for an export market and use this product to answer a) to c).

Name of Primary Product: _____

Main export country for this product: _____

- a) In the table below, specify **ONE** market opportunity for your primary product and, state **ONE** product attribute required for the market opportunity, then identify the **consumer preference for that attribute**.

Market Opportunity	Attribute	Consumer preference

Skill level 1	
1	
0	
NR	

- b) Describe **ONE** Intangible attribute of your Primary Product.

Skill level 2	
2	
1	
0	
NR	

- c) Analyze the generic attributes of your chosen product.

Skill level 3	
3	
2	
1	
0	
NR	

Question Two: Factor Influencing Primary Production

Use the chart below to answer a) to c)

Figure 1: Market segmentation for yam



- a) Describe how a pest can affect the production of yam.

Skill level 2	
2	
1	
0	
NR	

- b) Explain the importance of the segmentation above to the marketing of yam.

Skill level 3	
3	
2	
1	
0	
NR	

- c) Discuss how **consumer income level** affect the production of yam.

Skill level 4	
4	
3	
2	
1	
0	
NR	

Question Three: The Effect of Market Control

Agriculture is the basis for the Tongan Economy, which contributes 30% to GDP. **Squash**, **coconuts**, **bananas**, and **vanilla** beans are the main crops and Agricultural exports make up two-thirds of total exports.

- a) Identify a way that the Government intervenes with the production of any of these primary product mentioned in the text above.

Skill level 1	
1	
0	
NR	

- b) You are a farmer and you are exporting one of the product mentioned in the text above. Describe the **importance** of following the **biosecurity regulations** imposed by the **Quarantine department**.

Skill level 2	
2	
1	
0	
NR	

- c) Explain the role of PICTA in exporting squash, coconut or vanilla.

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

SECTION B: SUSTAINABLE PRIMARY PRODUCTION

Question One: Analysing Production Practices

Use the diagram below to answer a) to c). The diagram represents the natural pest predator.

Figure 2: *Praying mantis eating a grasshopper*



Source: (Samantha, 2016)

- a) Name **ONE** advantage of sustainable farming.

Skill level 1	
1	
0	
NR	

- b) Describe **ONE** advantage of the pest control method in **Figure 2**.

Skill level 2	
2	
1	
0	
NR	

- c) Explain the relationship of the pest control method in **Figure 2** with the idea of preventing solution.

Skill level 3	
3	
2	
1	
0	
NR	

- e) **Anthracnose disease** has become a major problem for the yam industry and there are no effective control measures other than fungicide. Discuss the **side effects** of fungicide on the environment.

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Skill level 4	
4	
3	
2	
1	
0	
NR	

Question Two: Sustainable Agricultural Issue

Use the picture to answer a) to c).

Figure 4: Symptom of a disease on yam and kava plant

A



B



Source: (Davis, Lomavatu-Fong, Ruabete, & Turaganivalu, 2005)

Choose **either** photograph A **or** photograph B to answer a) to c)

Chosen photograph: _____

a) Identify the **name of the disease** indicated in your chosen photograph.

Skill level 1	
1	
0	
NR	

b) Describe the most effective way to control the disease in your chosen photograph.

Skill level 2	
2	
1	
0	
NR	

c) Describe the **importance of controlling the disease** in the crop indicated in your chosen photograph.

Skill level 2	
2	
1	
0	
NR	

- d) Choose a husbandry practice from the list below and explain how it can sustain a livestock production in a property.
- A. Rotational grazing
 - B. Vaccination
 - C. Breeding
 - D. Iron injection
 - E. Weaning

Chosen husbandry practice: _____

Explanation: _____

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Skill level 3	
3	
2	
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NR	

[illegible]

Skill level 4	
4	
3	
2	
1	
0	
NR	

SECTION C:**PRODUCTION MANAGEMENT****Question One: Schedule of Operation**

Select a locally produced animal. Answer a) to d) using the animal you have selected.

Name of farm animal: _____

- a) Identify a manipulation that can be made during establishment to produce a quality product.

Skill level 1	
1	
0	
NR	

- b) Drenching is one of the important husbandry practice that should be done during the establishment of any livestock production.

Describe the proper way of doing drenching to your chosen animal.

Skill level 2	
2	
1	
0	
NR	

- c) Explain the beneficial effect of any biological manipulation to your chosen animal in regard to profitability.

Skill level 3	
3	
2	
1	
0	
NR	

- d) Describe the proper way of preparing your animal product to an identified market.

Skill level 2	
2	
1	
0	
NR	

Question Two: Factors affecting schedule of operation

For Question two you can use any Primary Production to answer a) to b).

Chosen Crop/Animal: _____

a) Define Primary Production process.

Skill level 1	
1	
0	
NR	

b) Describe the production process of your chosen crop or animal.

Skill level 2	
2	
1	
0	
NR	

In the box below are some of the factors that influence the schedule of operation. Choose **ONE** factor from the box and use it to answer c)

Land Availability	Capital
Technical advice	Technology

Chosen Factor: _____

c) Explain how your selected factor influence the schedule of operation.

Skill level 3	
3	
2	
1	
0	
NR	

Question Three: Manipulation of the schedule of operation

Choose **ONE** animal product from the list in the box to answer a) to d)

Milk	Egg
Pork	Beef
Lamp	Chicken

Chosen product: _____

a) Define **manipulation**.

Skill level 1	
1	
0	
NR	

b) List the market opportunity for your chosen product.

Skill level 2	
2	
1	
0	
NR	

c) Explain how a manipulation in the production of your chosen product maximizes your profit.

Skill level 3	
3	
2	
1	
0	
NR	

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