

MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

TONGA NATIONAL FORM SEVEN CERTIFICATE

AGRICULTURAL SCIENCE

2017

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. Answer ALL QUESTIONS. Write your answers in the spaces provided in this booklet.
3. If you need more space for answers, ask the Supervisor for extra paper. Write your SEN on all extra sheets used and clearly number the questions. Attach the extra sheets at the appropriate places in this booklet.

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

Check that this booklet contains pages 2-15 in the correct order and that page 15 has been deliberately left blank.

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

SECTION A: PRIMARY PRODUCTION

Question One: Primary Production

Select a primary product from the list below then use it to answer the questions that follow.

- Squash pumpkin
- Vanilla
- Kava
- Watermelon

Name of Primary Product : _____

a. Name the export market for your selected Primary Product.

Skill level 1	
1	
0	
NR	

b. Explain the generic attribute of the named primary product for the named export market (named in a).

Skill level 3	
3	
2	
1	
0	
NR	

c. Describe the grading procedure of your named primary product for the selected export market (named in a).

Skill level 2	
2	
1	
0	
NR	

- b. Name a Primary Product then explain the influence of weather in the production of the named primary product.
(provide data and example to support your answer)

Primary Product: _____

Skill level 3	
3	
2	
1	
0	
NR	

SECTION B: SUSTAINABLE PRIMARY PRODUCTION

Question One: Analyzing Production Practices

Name a primary product you have studied, for local sales or export, and then use that crop to answer the following questions.

Name of Primary Product: _____

Market: _____

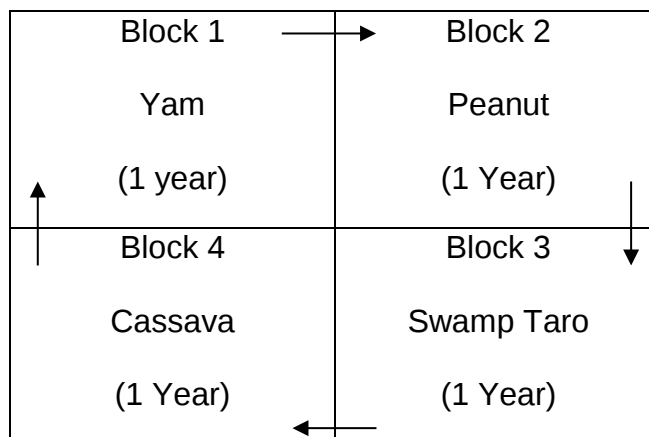
- a. Define sustainable Agriculture.

Skill level 1	
1	
0	
NR	

- b. List the impact of sustainable farming on agriculture.

Skill level 2	
2	
1	
0	
NR	

Use this diagram for part c.



- c. Explain the advantages of the farming practice illustrated above as a method of sustainable farming.

Skill level 3	
3	
2	
1	
0	
NR	

- d. Name a livestock production you have studied this year and describe a method you can use to sustain it.
Consider pest, disease management and nutrition in your answer.

Name of Animal : _____

Skill level 2	
2	
1	
0	
NR	

- e. Identify the problems of animal production (named in d.) in relation to sustainable production.

Skill level 1	
1	
0	
NR	

Question Two: Sustainable Agriculture Issue

Select a crop or animal that you have studied in class for local or export market and identify an issue relevant to your selected crop/animal.

Crop/animal : _____

- a. From your chosen product identify the issues relevant to your product.

Skill level 1	
1	
0	
NR	

- b. Explain the importance of these issues, identified in (a.) to sustainable Agriculture.

Skill level 3	
3	
2	
1	
0	
NR	

- c. Describe the best way to control weed in the crop plot or paddock.

Skill level 2	
2	
1	
0	
NR	

- d. Name a farming animal that you have studied and a pest or parasite that affects it.

Describe the best method to control the spread of the named pest or parasite in order to maintain the production.

Name of Animal: _____

Pest or Parasite: _____

Skill level 2	
2	
1	
0	
NR	

SECTION C: PRODUCTION MANAGEMENT

Select a locally produced crop/animal. Answer **all of question One** using the crop/animal you have selected.

Name of crop/animal: _____

Question One: Schedule of operation

- a. Identify the possible establishment times of your chosen crop/animal to meet the seasonal demand.

Skill level 1	
1	
0	
NR	

- b. Describe the variety/breed of crop or animal you prefer to grow or raise.

Skill level 2	
2	
1	
0	
NR	

Managing of crop and animal involve the following management practices:

1. Controlling of pest and disease
2. weed control,
3. fertility/nutrition,
4. weaning
5. Irrigation.

- c. Select **ONE** (1) of the management practice above and **describe** how it is done to improve the production of your chosen product.

Management : _____

Brief description:

Skill level 2	
2	
1	
0	
NR	

Question Two: Factor affecting the Schedule of operation

Select one Primary Product from the List Below to answer Part a) to part c).

Crop Production	Animal Production
Squash pumpkin	Cattle
Yam	Pig
Vanilla	Sheep
Kava	chicken

Name of Primary Product: _____

- a. Identify areas where husbandry techniques affect production of the above named Primary product.

Skill level 1	
1	
0	
NR	

- b. Explain the production process for the selected primary product.

Skill level 3	
3	
2	
1	
0	
NR	

- c. Relate the schedule of operations to achieve an optimum point of sale.

Skill level 3	
3	
2	
1	
0	
NR	

Question Three: Manipulation of the Schedule of operation

- a. Define product manipulation.

Skill level 1	
1	
0	
NR	

- b. Identify a product manipulation technique that can affect product quality or quantity.

Skill level 1	
1	
0	
NR	

- c. Describe the concept of profit maximization and yield maximization.

Skill level 2	
2	
1	
0	
NR	

- d. Evaluate a market opportunity to decide the best manipulation technique to be applied during the production process.

Skill level 4	
4	
3	
2	
1	
0	
NR	

SECTION D:**POST HARVEST****Question One: Preparation for market**

Select a locally produced root crop. Answer all of **question One** using the crop/animal you have selected.

Name of crop: _____

- a. Describe the appropriate methods of harvesting your named root crop.

Skill level 2	
2	
1	
0	
NR	

- b. Explain the proper post-harvest treatment for your named product.

Skill level 3	
3	
2	
1	
0	
NR	

- c. Discuss the appropriate storage method for your named product to maintain its freshness.

Skill level 4	
4	
3	
2	
1	
0	
NR	

Question Two: Procedure involved in Post-harvest

You can refer to the primary product named in **Question One**, when answering the following questions.

- a. Describe the maturity index for your named product in **Question One** (page 12).

Skill level 2	
2	
1	
0	
NR	

- b. Describe the advantages of packing of processed food stuffs.

Skill level 2	
2	
1	
0	
NR	

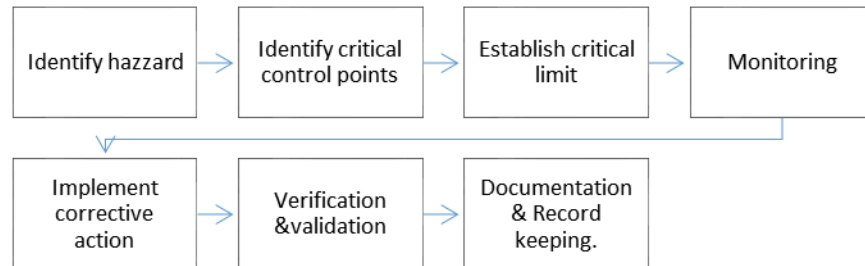
- c. Distinguish between the advantages of these harvesting material; **Polyethylene bags** and **wooden field boxes**.

Skill level 3	
3	
2	
1	
0	
NR	

Question Three: Post-harvest handling

Study the diagram below and use it to answer part a. and part b.

The steps in conducting a Hazard Analysis Critical Control Point (HACCP).



- a. Describe the principle of Hazard Analysis Critical Point (HACCP).

Skill level 2	
2	
1	
0	
NR	

- b. Within the process of HACCP it involves packaging which indicates the brand name, logo, expiry date etc. Describe the importance of these practices prior to packing.

Skill level 2	
2	
1	
0	
NR	

THIS PAGE HAS BEEN DELIBERATELY LEFT BLANK.