



MARKER CODE			

STUDENT PERSONAL IDENTIFICATION NUMBER					

TONGA GOVERNMENT
MINISTRY OF EDUCATION AND TRAINING

Tonga National Form Seven Certificate

AGRICULTURAL SCIENCE

2015

QUESTION and ANSWER BOOKLET

Time allowed: Three Hours

INSTRUCTIONS

1. Write your **Student Personal Identification Number (SPIN)** on the top right hand corner of this booklet.
2. Write your answers for each question in the spaces provided in this booklet.
3. If you need more space for answers, ask the Supervisor for extra paper. Write your SPIN on all extra sheets used and clearly number the questions. Attach the extra sheets at the appropriate places in this booklet.

TOPIC	Pages	Time (mins)	Total
SECTION A: Primary Production	2 - 5	36	20
SECTION B: Sustainable Primary Production	6 - 11	54	30
SECTION C: Production Management	12 - 20	90	50
TOTAL	20 pages	180 mins	100 marks

4. Questions in this examination require you to refer to primary products you have studied.
5. Check that this booklet contains pages 2-20 in the correct order. Pages 21-23 has been deliberately left blank.

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

SECTION A: PRIMARY PRODUCTION**TOTAL: 20 Marks****Question 1: Production**

In the table below, list TWO primary crop products and TWO animal primary products that are locally produced. For each product you listed:

- Indicate with a tick (✓) if the product is for local market
Name the type of local market opportunity available for each produced product.
- Indicate with a tick (✓) if the product is produced for an export market
Name the main export country for each export product.

	Primary Product	Local Market	Local Market Opportunity	Export Market	Export Country
1					
2					
3					
4					

Skill level 1	
1	
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Skill level 1	
1	
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Question 2: Marketing System

The picture below shows how local farmers sell agricultural products locally.



- Identify the marketing system shown in the above picture.

Skill level 1	
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- b. Describe an advantage of this marketing system to the consumers.

Skill level 2	
2	
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Question 3: Quantity and Attributes Requirements

Select ONE Primary product that is exported. You can use one of the products named in Question 1.

Export Primary Product: _____

Country exported to: _____

- a. For the above named primary product, state the typical quantity of product that can be expected at harvest per acre or per animal (Example: trays/ cartons per acre, kg of carcass weight per animal)

Skill level 1	
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- b. Describe the product attribute (example; breed, variety, colour, live weight, etc) required for the market you selected. Use units and values, where appropriate, to help describe the product attribute required.

Skill level 2	
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- c. Explain why the named market has this requirement.

Skill level 3	
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Question 4: Factors Influencing Primary Production

Select one primary product that is exported from Tonga, then use it to answer the questions that follows. You can use the one named in Question 3 or any named in Question 1.

Export Primary Product : _____

Country exported to : _____

- a. Discuss TWO market requirements for your selected export primary product. For each requirement, explain how it is suitable for export market.

[illegible]

Skill level 4	
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Given below are market forces that influence the agricultural primary production.

- Transportation
- Seasonality of supply and demand
- Competitions with other products or supplements
- Product storage/ shelf life

b. Define **seasonality of supply** in export primary product?

Skill level 1	
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c. State the importance of **shelf life** in your named export primary product.

Skill level 1	
1	
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d. Rank the two market forces in b and c, in terms of their effect on the quantity of the named primary product, in the market place. Justify your ranking, by explaining in detail, the significance of each market force on the supply of the product.

Skill level 3	
3	
2	
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SECTION B: SUSTAINABLE PRIMARY PRODUCTION**TOTAL: 30 Marks****Question 1: Management Practices**

Name ONE primary product you studied this year, and use it to answer the following questions. You can use any primary product, even if you had used it in previous questions.

Selected Primary Product: _____

- a. Define sustainable primary production?

Skill level 1	
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Given below, are three management practices that farmers need to carry out to maintain sustainable production of the named primary product.

- Soil management such as soil fertility
- Waste management such as disposal effluent
- Water management such as runoff

- b. Select ONE management practice and list the steps on how it is carried out, in a sustainable way.

Skill level 1	
1	
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- c. Justify your answer in b) above as to why is it a suitable method for this management practice to be carried out. You must compare your answer to a less sustainable method.

Skill level 3	
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- d. i. Define good labour management practice in relation to the production of your named primary product.

Skill level 1	
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- ii. State the procedure for a good soil management practice that contributes to maintaining sustainable production.

Skill level 1	
1	
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Question 2: Husbandry and Agronomy Practices

It is the Farm manager's role to ensure that the capability of long-term primary production is maintained in the farm. He has to improve the husbandry/ agronomic production practices.

Name a local primary crop product: _____

- a. i. Describe how fertilizers can maintain and increase the production of a local primary crop product in the long run.

Skill level 2	
2	
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- differentiate the performance of these fertilizers
- identify their advantages and disadvantages.

Based on this comparison, recommend which fertiliser should be used. Give the **name** of the fertiliser, and a **specific method** and **program** for application.

[illegible]

Skill level 3	
3	
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- b. Explain how parasite control can improve production in a long run for a farm animal that you have studied this year. In your answer, give an example of a control method that was or can be used, describing how it is carried out, and explain how it helped in sustaining production of your selected farm animal.

Name of farm animal:

[illegible]

Skill level 3	
3	
2	
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- c. Discuss how **crop rotation** can improve production in a long run for a crop you studied. In your answer, define crop rotation, describe an effective way of doing it, and explain how it helped in sustaining production of your selected crop. Give a good example to support your answer.

Crop name: _____

[illegible]

Skill level 4	
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- d. Define **genetic selection** as used in agriculture.

Skill level 1	
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- e. State what will happen if a farmer uses the same pesticide continuously in controlling the same pest in your crops?

Skill level 1	
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- f. Name an agricultural practice where the same **crop** is planted year after year?

Skill level 1	
1	
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Question 3: Global Agricultural Issues

The global issues given below have some effects on the primary products produced in Tonga.

Select ONE agricultural issue from those listed below that is important to the primary product you studied this year. Some of the Global Issues to select from are;

- *Introduction of new species.*
- *Invasive species.*
- *Genetic engineering.*
- *Pollution.*

Selected global issue: _____

- a. Describe the global issue you selected and give a specific example.

Skill level 2	
2	
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- b. With reference to the primary product you studied, describe how the selected global issue affects the production.

Skill level 2	
2	
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SECTION C: PRODUCTION MANAGEMENT**TOTAL: 50 Marks**

This section is in two parts:

Part A: Crop Production Management (26 marks)

Part B: Farm Animal Production Management (24 marks)

PART A: CROP PRODUCTION MANAGEMENT (26 marks)

Answer ALL questions in this part. Select a locally produced crop that you have studied to answer the questions that follows.

Question 1: Schedule of Operation

Name of selected crop: _____

- a. Name the features of a good site for the selected crop stated above.

Skill level 1	
1	
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- b. State ONE problem faced in the selection of a suitable site for your selected crop.

Skill level 1	
1	
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- c. Describe the production characteristics of the variety of your selected crop.

Skill level 2	
2	
1	
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NR	

- d. Name another significant variety of your selected crop that can also be grown.

Skill level 1	
1	
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-

The management practices of crops involves the **monitoring of water supply, plant protection, nutrient and light**. Select ONE practice and

- [illegible]

Skill level 4	
4	
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Question 2: Factors influencing the Schedule of Operations

- a. Discuss the effect technical information has on ONE aspect of the schedule of operation, and eventually the production of your selected crop. Use an example, figures, units and values where appropriate.

[illegible]

Skill level 4	
4	
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- b. Explain how market demands over the past years have affected one specified aspect or a step of the schedule of operations, hence, the production of your selected crop. Use examples, and values where appropriate.

OR

Explain why market demands have had little or no effect on a specified aspect or step of the schedule of operations, hence, the production of your selected crop. Use examples and values where appropriate.

[illegible]

Skill level 3	
3	
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- c. One of the main problems with growers in Tonga is not having enough money to start a crop enterprise. Explain ONE specified aspect or step of the schedule of operations of your selected crop that is mainly influenced by lack of money, hence its production. Use examples, and values where appropriate.

[illegible]

Skill level 3	
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- Use examples and values where appropriate.

Skill level 4	
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PART B: FARM ANIMAL PRODUCTION MANAGEMENT**(24 marks)**

Answer ALL questions in this part. Select a locally produced farm animal that you have studied to answer the questions that follows.

Name of selected farm animal : _____

Specific market for the product : _____

Question 3: Schedule of Operations

- a. Define the term **Schedule of operation**.

Skill level 1	
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- b. Identify the most suitable site for raising your selected farm animal.

Skill level 1	
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- c. Give a reason for selecting the site in **b** above.

Skill level 1	
1	
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- d. Describe how rearing is done in your selected farm animal. Refer to the timing, how rearing is done and why is it done.

Skill level 2	
2	
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- e. The management practices of farm animals involve the monitoring of water supply, animal health, nutrition, temperature and light period. Select **ONE** practice and explain how it will be managed to maximise animal production.

Skill level 3	
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- f. Describe the production characteristics of a local breed of the animal you selected.

Skill level 2	
2	
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NR	

- g. Describe how you will identify your selected animals to help in recordings.

Skill level 2	
2	
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Question 4: Factors Influencing the Schedule of Operations

- a. Explain how technical information influences one specified aspect or step of the schedule of operations and hence the production of your selected farm animal. Use an example, and values where appropriate.

Skill level 3	
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- b. Describe how market demands over the past years have affected ONE specified aspect or step of the schedule of operations, and the production of your selected farm animal. Use examples and values where appropriate.

Skill level 2	
2	
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- c. One of the main problems with farmers in Tonga is not having enough money to establish an animal farm. Explain ONE specified aspect or step of the schedule of operations of your selected farm animal that is mainly influenced by lack of money, hence its production. Use examples, and values where appropriate.

Skill level 3	
3	
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- Use examples and values where appropriate.

[illegible]

Skill level 4	
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