



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES  
SCHOOL OF AGRICULTURE AND NATURAL RESOURCES SCIENCES  
DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS**

<b>QUALIFICATIONS:</b> BACHELOR OF SCIENCE IN AGRICULTURE	
<b>QUALIFICATIONS CODE:</b> 07BAGA	<b>LEVEL:</b> 7
<b>COURSE CODE:</b> SCP621S	<b>COURSE NAME:</b> SUSTAINABLE CROP PRODUCTION
<b>DATE:</b> JANUARY 2025	<b>PAPER:</b> 2
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 100

<b>SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER:</b>	DR. VENAUNE HEPUTE
<b>MODERATOR:</b>	DR. EDGARS MOWA

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer all the questions.</li><li>2. Write neatly and clearly.</li><li>3. Mark all answers clearly with their respective question numbers.</li><li>4. All written work MUST be done in blue or black ink.</li><li>5. No books, notes and other additional aids are allowed.</li></ol>

**PERMISSIBLE MATERIALS**

1. Calculator
2. Examination paper
3. Examination script

**THIS QUESTION PAPER CONSISTS OF 3 PAGES  
(Excluding This Front Page)**

**SECTION A: MULTIPLE CHOICE AND TRUE / FALSE****[10 MARKS]****QUESTION 1: MULTIPLE CHOICE QUESTIONS**

Evaluate the statements in each numbered section and select the most appropriate answer or phrase from the given possibilities. Fill in the appropriate letter next to the number of the correct statement/phrase on your ANSWER SHEET.

[10 marks]

1.

1.1. The following are Sustainable Crop Production pillars EXCEPT.

- a). Economic
- b). Environmental
- c). Social
- d). Educational

1.2. The following are weather, and climate elements required for optimal crop growth EXCEPT.

- a). Organic matter
- b). Rainfall
- c). Humidity
- d). Temperature

1.3. These are among horticulture crops of economic importance in Namibia.

- a). Maize, pearl millet, wheat
- b). Sesame, groundnuts, soyabeans
- c). Cabbage, tomatoes, potatoes, grapes
- d). None of the above

1.4. The typical climate requirement of pearl millet.

- a). Temperatures of around -6°C to 16°C, annual rainfall in the range of more than 600 mm
- b). Temperatures of around 13°C to 16°C, annual rainfall in the range of 450 to 1000 mm
- c). Temperatures of around 28°C to 30°C, annual rainfall in the range of 200 to 500 mm
- d). None of the above

1.5. These are among agronomy crops of economic importance in Namibia.

- a). Cabbage, lettuce,
- b). Grapes, guava, soyabeans
- c). Maize, wheat, pearl millet
- d). None of the above

1.6. These are different types of vegetable crops EXCEPT;

- a). Lettuce
- b). Cabbage
- c). Rice
- d). Tomato

1.7. The following are direct benefit of green manure.

- a). Increased pest infestation
- b). Increased nitrogen, water retention, reduced erosion
- c). Increased nitrogen, increased weed, improved spacing
- d). Pest control, reduced diseases, reduced labour and income

- 1.8. The benefit of crop rotation in the soil;
  - a). Decrease yield
  - b). Increase pest
  - c). Improve soil structure, microbial activity, moisture retention
  - d). Increase water run-off
  
- 1.9. Among others, the following are sustainable fertilization practices.
  - a). Mulching, Green Manure, Cover Crop, Crop Rotation
  - b). Integrated Pest Management, Application of herbicides
  - c). Application of excessive pesticides
  - d). Maximum tillage
  
- 1.10. The following factors among others influence temperature
  - a). Wind, precipitation, day length, clouds
  - b). Food, soil colour, birds
  - c). Nutrients, people, fertilizer
  - d). None of the above

#### QUESTION 2: TRUE/FALSE QUESTIONS

[10 MARKS]

Evaluate the statements and select whether the statement is true or false. Write the word 'True' or 'False' next to the corresponding number on your ANSWER SHEET.

[10 marks]

- 2.
- 2.1 Karst production zone is the top grapes producing zones in Namibia.
- 2.2 Low level clouds are formed at 7 km to 13 km above the ground
- 2.3 Weather is the short-term atmospheric conditions of any particular place.
- 2.4 LiDAR stands for Light Detection and Ranging.
- 2.5 Climate is the average of weather conditions over a long time in that specific place or space.
- 2.6 Weather and climate elements have vital impact on crop production.
- 2.7 Pearl millet is a crop within the group of oilseeds.
- 2.8 Cabbage is a crop among the cereal crop group type.
- 2.9 All agricultural practices have no contribution towards global warming neither on climate change
- 2.10 Sustainable crop production system does not use any fertilizer.

**SECTION B: SHORT/LONG ANSWER QUESTIONS****[20 MARKS]**

Please answer ALL the questions in this section.

**QUESTION 3: TERMINOLOGIES.**

3. Define and discuss the following terminologies

- 3.1. Sustainable Crop Production *[4 marks]*
- 3.2. Conventional Agriculture *[4 marks]*
- 3.3. Integrated Pest Management *[4 marks]*
- 3.4. Conservation tillage *[4 marks]*
- 3.5. Agro-climatology *[4 marks]*

**QUESTION 4: SUSTAINABLE PRODUCTION PRACTICES****[35 MARKS]**

4.

- 4.1. Name and explain five (5) Factors influencing temperature. *[10 marks]*
- 4.2. List and explicitly discuss five (5) production practices used in sustainable crop production *[10 marks]*
- 4.3. Develop a sustainable tomato crop production management program adhering to the pillars of sustainable production, illustrate at each production stage the appropriate and exact sustainable production practices to be applied, starting from land preparation till harvesting. *[10 marks]*
- 4.4. Name and discuss different types of tillage practices recommendable under sustainable crop production system. *[5 marks]*

**QUESTION 5: SMART - PRECISION AGRICULTURE****[25 MARKS]**

5.

- 5.1. Define Smart Agriculture. *[5 marks]*
- 5.2. Briefly discuss the benefit (objectives), Disadvantages and Advantages of Smart Agriculture. *[10 marks]*
- 5.3. List and explain devices, tools and equipment used under smart agriculture crop production system. Illustrate at each production stage the appropriate and exact smart production tool or device used starting from land preparation till harvesting. *[10 marks]*

---

**END OF QUESTION PAPER**