



**SUPPLEMENTARY 2004/2005**

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**UNIVERSITY OF SWAZILAND**

**SUPPLEMENTARY EXAMINATION PAPER**

**PROGRAMME:** BACHELOR OF SCIENCE IN AGRICULTURE  
YEAR 5 (CROP PRODUCTION,  
HORTICULTURE AND LAND AND WATER  
MANAGEMENT OPTIONS) AND BACHELOR  
OF SCIENCE IN AGRICULTURAL EDUCATION  
YEAR 5

**COURSE CODE:** CP 502

**TITLE OF PAPER:** SOIL CHEMISTRY AND FERTILITY

**TIME ALLOWED:** TWO AND A HALF (2.5) HOURS

**INSTRUCTIONS:** ANSWER FOUR QUESTIONS, TWO (2)  
QUESTIONS FROM EACH SECTION

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BY THE CHIEF INVIGILATOR**

**SECTION 1: SOIL CHEMISTRY**

**QUESTION 1**

Discuss the important chemical, physical and biological effects of organic matter which are of significance when soils are used for crop production.

[25]

**QUESTION 2**

Discuss the stability of feldspar minerals in soils and indicate the significance of these minerals in soil science and on the mineral nutrition of plants.

[25]

**QUESTION 3**

Discuss the fate of pesticides in soils and indicate the impact of these substances on the environment.

[25]

**SECTION 2: SOIL FERTILITY**

**QUESTION 4**

Discuss the role of micronutrients in crop production. [25]

**QUESTION 5**

(a) Discuss the various ways in which nitrogen is added to soils. [13]

(b) Highlight the management strategies you would recommend to improve the efficiency of nitrogen uptake and utilization by plants. [12]  
[25]

**QUESTION 6**

Discuss four methods of fertilizer application which you would recommend to farmers and highlight their merits and demerits. [25]