



1st SEMESTER 2009/2010

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMME:** BACHELOR OF SCIENCE IN AGRICULTURAL  
ECONOMICS AND AGRIBUSINESS YEAR TWO

BACHELOR OF SCIENCE IN ANIMAL SCIENCE  
YEAR 2

BACHELOR OF SCIENCE IN ANIMAL SCIENCE  
YEAR 2 (DAIRY OPTION)

**COURSE CODE:** CP 205

**TITLE OF PAPER:** PRINCIPLES OF CROP PRODUCTION

**TIME ALLOWED:** TWO (2) HOURS

**INSTRUCTION:** ANSWER QUESTIONS 1 AND 2, WHICH ARE  
COMPULSORY AND ANY OTHER TWO QUESTIONS OF  
YOUR CHOICE

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BY THE CHIEF INVIGILATOR**

**QUESTION 1**  
**(THIS IS A COMPULSORY QUESTION)**

(a) Write an essay on conservation agriculture.

(14 Marks)

(b) A farmer has been advised to apply 120 kg/ha of nitrogen to his maize crop. He applied 300 kg/ha of a compound fertiliser [2-3-2(22)] to his maize crop as basal dressing. He plans to apply nitrogen, in the form of limestone ammonium nitrate (LAN) fertiliser, as side dressing when the maize is about 45 cm tall. How many bags of LAN fertiliser should the farmer apply to meet the nitrogen requirement of the maize crop?

(14 Marks)

**[28 Marks]**

**QUESTION 2**  
**(THIS IS A COMPULSORY QUESTION)**

Write briefly on **a to g** listed following. Give examples to illustrate your answers, where necessary. Each question carries four marks.

- (a) Ideal characteristics of green manure crops
- (b) Seed vigour tests
- (c) Green house gases
- (d) Methods of determining leaf area in crop plants
- (e) Yield components in crops
- (f) Methods of applying fertilisers to crops
- (g) Differences between kraal manure and farm yard manure.

**[28 Marks]**

## QUESTION 3

- (a) What is LER? (2 Marks)
- (b) From the data below, calculate LER and interpret the results (7 Marks)

Cropping system	Yield (kg/ha)	
	Maize	Groundnuts
Monoculture crop of maize	5,685	None
Monoculture crop of groundnut	None	1,687
Maize intercropped with groundnuts	5,890	754

- (c) What is multiple cropping system? (3 Marks)
- (d) Explain why multiple cropping system is very popular with small-scale farmers (10 marks)
- [22 Marks]**

## QUESTION 4

Distinguish between the following pairs of words/terms. Use examples and/or diagrams to illustrate your answers.

- (a) Cash crop and catch crop (3 Marks)
- (b) Optimum leaf area index and critical leaf area index (4 Marks)
- (c) Alley cropping and alley farming (3 Marks)
- (d) Economic yield and biological yield (4 Marks)
- (e) Effective tillers and non-effective tillers in rice (4 Marks)
- (f) Replacement series and additive series in crop competition (4 Marks)
- [22 Marks]**

## QUESTION 5

- (a) Write on the importance of the following initiatives of the Swaziland Government in addressing the problem of household food insecurity. (11 Marks)
- (i) Seed fairs (3 Marks)
- (ii) Maize competition (4 Marks)
- (iii) Agricultural shows (4 Marks)
- (b) What is Millennium Development Goal No. 1 (MDG 1)? Explain what the Swazi Government should do in order to achieve MDG 1. (11 Marks)
- [22 Marks]**