



1st SEMESTER 2011/2012

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

**[2] REGISTRAR, PLEASE PROVIDE GRAPH PAPERS  
[ONE SHEET] TO EACH STUDENT**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED  
BY THE CHIEF INVIGILATOR**

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

(a) Write an essay on organic manures.

(18 Marks)

(b) An experiment was conducted at the Luyengo Campus of the Faculty of Agriculture to determine the effects of nitrogen fertiliser rates on maize yield. Leaf number was determined from five plants and average leaf length and width were determined from one plant. From the data below, calculate LAI, draw a line graph and interpret the results.

Days after planting	14 kg/ha of nitrogen			28 kg/ha of nitrogen			42 kg/ha of nitrogen		
	No. leaves from five plants	Average leaf length (cm)	Average leaf width (cm)	No. leaves from five plants	Average leaf length (cm)	Average leaf width (cm)	No. leaves from five plants	Average leaf length (cm)	Average leaf width (cm)
21	35	32	3	66	53	6	77	60	7
28	47	44	5	80	75	7	95	78	8
42	60	56	8	85	88	8	105	95	9
49	75	57	9	90	90	10	110	100	10

(10 Marks)

[28 Marks]

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

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

- (a) Ideal characteristics of an agroforestry species
- (b) Advantages of seed priming
- (c) Source-sink relationships
- (d) Biofuel crops
- (e) OPVs
- (f) Stages in on-farm research
- (g) Factors affecting efficiency of light utilisation by plants.

[28 Marks]

**QUESTION 3**

- (a). What is seed dormancy?
- (b). Discuss the advantages and disadvantages of seed dormancy
- (c). How would farmers in a rural area of Swaziland break seed dormancy in ligusha (*Corchorus olitorius*)

**[22 Marks]**

**QUESTION 4**

Write an essay on on-farm research

**[22 Marks]**

**QUESTION 5**

Two main factors that have contributed to food insecurity in Swaziland are erratic rains and the high costs of commercial fertilisers. Suggest how these constraints can be addressed in Swaziland.

**[22 Marks]**