

---

**UNIVERSITY OF FORT HARE  
FACULTY OF SCIENCE AND AGRICULTURE**

**PRINCIPLES OF CROP PRODUCTION  
AGC 222**

**EXAM**

**NOVEMBER**

**2018**

.....  
**Time: 3 HOURS**

**Subject: AGC222**

**Marks: 100 MARKS**

**This paper consists of Two pages including the cover  
page**

**Examiner(s)  
Dr. ST Hadebe**

**INSTRUCTIONS**

1. This paper consists of TWO pages including the cover page.
2. There are SIX questions, answer ALL.
3. Write all answers in the answer book.
4. Number all answers correctly.

**QUESTION 1** [10 Marks]

- 1.1. Discuss how competition for a physical resource begins/ occurs between plants. (2)
- 1.2. Explain what happens to a grain cereal plant that is subjected to extended overshadowing in terms of carbon partitioning. (2)
- 1.3. Discuss the concept of self-thinning in relation to overcrowding. (6)

**QUESTION 2** [20 Marks]

- 2.1. Mention and discuss 5 disadvantages of conservation tillage systems.

**QUESTION 3** [20 Marks]

- 3.1. The following questions relate to fertilizer types and usage.
- 3.1.1. Mention four general factors influencing the selection, rate and method of application of fertilizers. (4)
- 3.1.2. Mention four types of nitrogenous fertilizers commonly used in South Africa (4)
- 3.1.3. What do the following fertilizers promote in crops? Nitrogenous fertilizers, Phosphatic fertilizers and Potassic fertilizers. (3)
- 3.2. A 25 kg bag of N-P-K fertilizer with an analysis of 3.1.3 (42) is broadcasted over an area of 9 ha. Calculate rate of nitrogen application in kg/ha.
- 3.2.1. Ratio of Potassium per 100 g of fertilizer (3)
- 3.2.2. Total Potassium mass in the bag, in kg. (3)
- 3.2.3. Rate of Nitrogen application, in kg/ha (3)

**QUESTION 4** [20 marks]

- 4.1. Discuss four factors important for determining optimum density in crop production (20)

**QUESTION 5** [10 Marks]

- 5.1. Mention five characteristics of a good cropping system essential for a good rotation. (10)

**QUESTION 6** [20 Marks]

- 6.1. Give a brief description of four categories of practices adopted by organic crop producers, and discuss key practices adopted for each category. (20)