

UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DISCIPLINE OF CROP SCIENCE
FINAL EXAMINATION: NOVEMBER 2014
SUBJECT, COURSE & CODE: STAPLE CROP PRODUCTION, AGPS 714

DURATION: 3 HOURS

TOTAL MARKS: 180

Internal Examiners: Professor Albert T. Modi, Dr L. Magwaza and Dr A. Odindo
External Examiner: Dr G.E. Zharare

NOTE: THIS PAPER CONSISTS OF ONE (1) PAGE AND FOUR (4) QUESTIONS ONLY. ANSWER ALL QUESTIONS.

QUESTION 1 [45]

Discuss the concept of a staple crop in the context of the current challenges of human population growth, food insecurity, ecological perspective and the relevance of crop development strategies in agriculture.

QUESTION 2 [45]

- (a) Give a list of the vegetative and reproductive stages of maize development. Then illustrate and explain management practices for VE, VT, R2 and R6. (35)
- (b) Give a generalised pattern of major nutrient uptake during maize development and provide a summary of how to manage soil nutrients for a successful crop. (10)

QUESTION 3 [60]

- a) Explain the basis of wheat variety classification from the physiological, agronomic and nutritional perspectives. (10)
- (b) Summarise the wheat management considerations basing on Feekes' growth stages. (10)
- (c) Briefly summarise the agronomy of sorghum with a focus on crop habit, water requirements, soil nutrient requirements and plant protection. (10)
- (d) Give a simple, but completely labelled illustration of sorghum's developmental stages. (10)
- (e) Millet is a short season, drought tolerant cereal. Discuss this statement and include an illustration of growth stages in your discussion. (10)
- (f) Discuss the concept of growth habit in common beans and its significance in crop management and performance. Use illustrations. (10)

QUESTION 4 [30]

- (a) As a seed producer of a potato cultivar that has a long dormancy period, discuss physiological mechanisms of methods you would employ to ensure uniform sprouting. (20)
- (b) The International Institute for Tropical Agriculture (IITA) reports that yam production is declining in most producing areas in West Africa. Briefly explain the reasons for the decline and provide an outline to improve yam production for smallholder agriculture. (10)

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