



EMBU UNIVERSITY COLLEGE
(A CONSTITUENT COLLEGE OF THE UNIVERSITY OF NAIROBI)

TRIMESTER EXAMINATIONS 2013/2014

FIRST YEAR EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN
AGRICULTURAL RESOURCE MANAGEMENT

ACA 603: CROP AND FORAGE PRODUCTION SYSTEM

DATE: AUGUST 8, 2014

TIME: 5.00 – 8.00PM

INSTRUCTIONS:

Answer ANY FOUR Questions.

QUESTION ONE

- a) Under the declining land size and increased unemployment, what recommendations would you give to individuals and to National or County government policy makers to intensify commercial dairy cattle production as means of creating employment?
(10 marks)
- b) The low yield per lactation is attributed to seasonal availability of adequate quantity and quality of feed. Based on this statement, answer the following questions: (10 marks)
- i.) Give three (3) reasons why this problem has remained perennial
 - ii.) What intervention measures would you put in place to reduce recurrence

- c) Fodder trees have been included in agroforestry system. Give their positive aspects and limitations in dairy production (5 marks)

QUESTION TWO

- a) Differentiate integrated crop and livestock systems from crop and livestock enterprise diversification (5 marks)
- b) What are the overall benefits of integrated crop and livestock systems? (5 marks)
- c) What factors determines the profitability of an integrated crop and livestock system? (5 marks)
- d) Highlight two crop livestock combinations that you would recommend in Mwea in Kirinyaga County or Mitunguu in Meru to maximize the overall benefits of integrated crop and livestock system (5 marks)
- e) Cactus (*Opuntia spp*) can be used as a vegetable, fruit and fodder for livestock. Indicate the importance of cactus as livestock feed, source of income and environmental conservation resource (5 marks)

QUESTION THREE

- a) Explain the term precision agriculture (5 marks)
- b) Describe the technology developments that have favoured implementation of precision agriculture (5 marks)
- c) Outline the economic and environmental impacts of precision agriculture (5 marks)
- d) List five benefits of precision agriculture (5 marks)
- e) Discuss the possibility of practising precision agriculture in dairy management (5 marks)

QUESTION FOUR

The common ley pastures namely Rhodes grass (*Chloris guyana*) Boma variety and Nandi setaria (*Setaria sephacelata*) came about as a result of forage exploration of indigenous pasture species, selection and domestication of indigenous grasses alongside exotic species. Based on this information, answer the following questions:

- a) Name eight (8) criteria for selecting an indigenous pasture species for domestication and commercialization (4 marks)
- b) Name the steps you would follow to establish a successful ley of Rhodes grass pasture field (5 marks)
- c) Describe how to rehabilitate the following:
 - i.) A rundown ley pasture field
 - ii.) Restore a degraded range land
- d) Define nutritive value and mention five (5) methods used for determination of nutritive value of pasture (5 marks)

QUESTION FIVE

- a) Differentiate between a fodder and a pasture grass (2 marks)
- b) What method would you adopt to establish fodder or pasture in marginal potential land? (3 marks)
- c) Name four (4) tree species used as fodder recommended for dairy cattle feeding and indicate their merits and demerits (5 marks)
- d) Indicate how agroforestry contributes to food security, income generation and job creation in the community (5 marks)

-END-