EGERTON UNIVERSITY

UNIVERSITY EXAMINATIONS

NJORO CAMPUS

SECOND SEMESTER 2011/2012

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE AND HORTICULTURE

AGRO 234: WEED SCIENCE

STREAM: Y2 B.Sc AGRIC. & B.Sc HORT. **TIME**: 2 HOURS

DAY: FRIDAY, 8.30 – 11.30 A.M **DATE:** 20/04/2012

INSTRUCTION:

- **Answer all questions**
- **Start each question on a fresh page of the answer booklet**

Q 1 Write brief notes on the following

i) Weed-Crop competition (2 marks)

ii) Allelopathy (2 marks)

iii) *Eichornia crassipes* (2 marks)

iv) Weed plasticity (2 marks)

v) *Orobanche minor* (2 marks)

vi) Sorgoleone (2 marks)

vii) Herbicide formulation (2 marks)

Q2 a) State the major groups of parasitic angiosperms and list an example of each. (5 marks)

b) Given the biology of host-striga association, outline the possible interventions that would disadvantage the establishment and/or competitive ability of the weed. (7 marks)

Q3 Study Table 1 below and use it to answer the questions that follow.

Table 1: Maize grain yield and biomass ± standard error at different emergence times of common lambsquarters

Relative time of weed emergence	Maize grain yield (t ha^{-1})	Biomass (t ha^{-1})
E_{14}†	2.834b‡± 0.99	9.877b ± 2.02
E_7	6.925b ± 1.08	19.270ab ± 1.77
E_0	13.370a ± 0.77	29.270a ± 1.12
SEM	0.98	1.89
CV (%)	16.80	11.66

E_{14} and E_7 refer to 14 and 7 days earlier emergence of common lambsquarters than corn, respectively and E_0 is the same emergence time of common lambsquarters and corn; ‡ the means in the same column followed by the same letters were not significantly different, according to Fisher's Protected Least Significant Difference test ($P < 0.01$). CV, coefficient of variation; SEM, standard error of the means.

a) Briefly discuss the results in Table 1. (4 marks)

b) On the basis of the results in Table 1, outline the possible weed interference(s) in a weed- crop interaction on crop yield and the significance of timing of intervention in weed management. (7 marks)

Q4 a) Discuss the merits and application of the following approaches of managing Weeds.

i) Crop rotation (4 marks)

ii)Soil pH regulation (4 marks)

iii) Soil fertility regulation (4 marks)

b) Explain the concept of Integrated Weed Management (IWM) and state some examples. (6 mark)

Q5 a) Explain '**Herbicide Combination'** and list two herbicide products in the market with the individual chemicals in each. (5 marks)

b) A farmer is to apply Basagran (480g/L bentazone) at 560 g bentazone in 400 liters of spray solution ha^{-1} to manage *Cyperus esculantus* in 1 hectare piece of land. A spray calibration by the farmer reveals he could discharge 2.5 liters of spray solution in a 10x10 meter plot.

i) Determine the amount of Basagran needed for the field. (2 marks)

ii) Show if the recommendation will be achieved if spraying is done as per the calibration results and if not, suggest the necessary adjustments. (4 marks)

c) Explain the role of cytochrome P_{450} mono-oxygenase in managing *Cyperus esculantus* in maize with bentazone. (4 marks)

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