CRS 2211 FIELD CROPS DISEASES

2. LECTURER:

Dr. R. Edema (B.Sc. (Agric.) MUK, M.Sc., MUK; PhD (Ohio State University)

3. COURSE TYPE: CORE (B.Sc. Hort II)

4. COURSE STRUCTURE

Course Credits (CU): 3 CU i.e. 45 Contact Hours per semester

Course Duration: 15 weeks (45 hours) i.e. 30 LH, 15 PH

5. COURSE DESCRIPTION

This course will focus on details, the symptoms, the primary cause, conditions favouring development and dissemination of important crops, especially those grown in Uganda such as Cereals and Grasses; Legumes; and Fiber and Other Field Crops. A discussion on management and control measures for selected disease will be made. Morphology of the fungi/bacteria/virus concerned with the diseases and physiologic specialization and biotypes of the parasites will also be discussed in detail.

6. COURSE OBJECTIVES

* Know and appreciate symptoms of major field crop diseases and life histories of causal organisms. Students will be able to recognize at least 100 diseases of major crops in Uganda.
* Understand the epidemiology and control of diseases of field crops
* Understand the potential loss of yield or quality from various diseases of field crops

7. RECOMMENDED REFERENCES FOR READING

1. Plant Pathology (4th Edition) by G.N. Agrios Academic Press (1997)
2. Diseases of Field Crops D.S Hiller and J.M waller
3. Some Aspects of Crop Diseases in Uganda, A.M Emechebe Wilkins Co. Baltimore

8. COURSE CONTENT, METHODS OF INSTRUCTION, TOOLS AND EQUIPMENT REQUIRED

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| Topic | CONTENT | METHOD OF INSTRUCTION / Time allocated | TOOLS / EQUIPMENT NEEDED |
| 1. General Concepts | * Importance of plant disease to man * The disease concept * Definition of key terminologies; Parasitism, the Disease Cycle, the Disease triangle. | Interactive lectures (3 hrs) | Chalk / BB or Markers / Flip charts |
| 2. Causes Of Plant Diseases | * Description of abiotic and biotic factors | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts |
| 3. Diseases Caused By Pathogenic Fungi | * Recap fungi; morphology and taxonomy | Lectures (3 hrs) | Chalk / BB or Markers / |
| 4. Disease Caused By Lower Fungi (1) | * Description of the Plamosdiophoromycetes * Life cyle, disease symptoms and management of the Clubroot of crucifer | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts  Agar, Petri dishes, microscopes |
| 5. Disease Caused By Lower Fungi (2) | * Description of the Oomycetes * Life cyle, disease symptoms and management of the Late Blight of Potato and Tomato; Phythium rots | Lectures (3 hrs) | Chalk / BB or Exam papers |
| 6. Disease Caused By Lower Fungi (3) | * Description of Chytridiomycetes * Life cyle, disease symptoms of the Yellow blister of Cowpea | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts |
| 7. Disease Caused By Ascomycetes And Imperfect Fungi (1) | * Life cyle, disease symptoms and management of the Vascular wilts (Fusarium/verticillium)and Cercopsora disease of bananas | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts |
| 8. Disease Caused By Ascomycetes And Imperfect Fungi (2) | * Life cyle, disease symptoms and management of the Anthracnoses; Post harvest decays of grains/legume seed   Continues assessment (1) | Lectures (3 hrs)  Practical (1 hr) | Chalk / BB or Markers / Flip chart  Examination papers |
| 9. Disease Caused By Basidiomycetes | * Life cyle, disease symptoms and management of the Rhizoctonia rots; Rusts (coffee/cereals) and smuts   Field visit to MUARIK | Lectures (3 hrs)  Practical (3 hr) | Chalk / BB or Markers / Flip charts |
| 10. Disease Caused By Bacteria (1) | * Types of Phytopathogenic Bacteria | Lectures (3 hr) | Chalk / BB or Markers / Flip charts |
| 11. Disease Caused By Bacteria (2) | * Life cycle, disease symptoms and management bacterial soft rots: bacterial blights | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts |
| 12. Disease Caused By Phytoplasm And Spiroplasm | * Life cycle, disease symptoms and management citrus stubborn disease | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts |
| 13. Disease Caused By Viruses (1) | * Types of diseases caused by Plant viruses * Symptoms and management of important diseases caused by DNA viruses; African cassava mosaic virus disease; Maize streak disease, Banana Steak Virus | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts |
| 14. Disease Caused By Viruses (2) | * Important diseases caused by RNA viruses * Symptoms and management of Sweet potato virus disease; Cowpea Aphid borne mosaic Disease | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts |
| 15. Disease Caused By Viruses (3) | * Important diseases caused by Virus-like particles, * Symptoms and management of G/nut rosette virus   Continues assessment (2)  Field visit to NaCRRI research programs | Lectures (3 hrs) | Chalk / BB or Markers / Flip charts  Examination papers |
| Week 16-17 | * Evaluation and final exams | Lectures (3 hrs) | Transport (50) |

9. SUMMARY OF TIME NEEDED

Interactive lectures covering theory 30 hrs

Field tours and practicals 15 hrs

Evaluation 03 hrs

10. OVERALL COURSE EVALUATION

Continuous Assessment Test 30%

Laboratory practicals 10%

Final examination 60%