

PLNT0780 - Plant Disease Management

Professor:

Name: Dr. Dilantha Fernando, Professor

Office: 205 Plant Science

Phone: 474-6072,

E-mail: D.Fernando@umanitoba.ca

Office Hours: 8:30 a.m. to 4:30 p.m., Monday through Friday (by appointment please)

Teaching Assistants:

1. Mr. Abdulsalam Dakouri, PhD student – Email: umdakour@cc.umanitoba.ca
2. Ms. Li Ru, PhD student – email: umli267@cc.umanitoba.ca

Examinations:

- a) Mid-term exam.....25% (IN CLASS EXAM: October 22, 2010 - Friday)
- b) Lab reports.....25%
- c) Final Lab Exam.. 25% (In Class exam November 30, 2010 Tuesday)
- d) Final Exam.....25% (IN CLASS EXAM: December 2, 2010 - Thursday)

Missing mid-term and/or lab exam:

A grade of 0 (zero) will be assigned to any student who misses an exam without a valid reason or without the consent of the instructor. No rescheduling of an examination will be allowed, regardless of the circumstances. Those who miss the examination (with a valid reason .ie medical certificate) will have their final exam accounting for 25% (final exam) + the value of the missed examinations.

Plagiarism and cheating: Refer to the University of Manitoba General Calendar regarding the definition and penalties associated with impersonations, cheating and plagiarism.

Feedback: Feedback will be given to students following the first mid-term exam and prior to the voluntary withdrawal.

Books:

1. Diseases of Field Crops 2003. Bailey, Gossen, Gugal, Morrall – **Required** (in Bookstore)
2. Diseases and pests of vegetable crops in Canada by Howard, Garland and Seaman(optional)
3. Any documentation from Manitoba Agriculture on crop recommendation for Manitoba

PLNT078-PLANT DISEASE MANAGEMENT - 2010
Instructor - Dr. Dilantha Fernando (DF)

Course Outline

- I Cropping Systems Pathology – an introduction to an exciting course – DF
Plant Pathology from a cropping systems expert – Dr. Byron Irvin AAFC-BRC**
- II What are Plant Diseases and Common Knowledge on Plant Disease - DF**
 - 1. Discussion of the course and what is expected of the student
 - 2. Symptoms and how to differentiate between biotic and abiotic diseases
- III Importance of Plant Diseases in a cropping system– Dilantha Fernando**
 - 1. Types of Plant Diseases
 - 2. Effects of plant diseases on crop production and yield loss
- IV General Concepts in Plant Pathology – Dilantha Fernando**
 - 1. Terminology and Definitions
 - 2. Causes of Plant Diseases
 - 3. Plant-Pathogen-Environment interactions and Disease cycle
- V Principles of Plant Disease Control – Dilantha Fernando**
 - 1. Avoidance, exclusion and eradication
 - 2. Protection, resistance and therapy (chemical and biological control)
- VI Cropping practices and their effects on diseases – Dilantha Fernando**
 - 1. Methods influencing diseases
 - 2. what do we do in the new millennium?
- VII Diseases of Cereals – Dilantha Fernando with some guest lecturers**
 - 1. Fusarium head blight on wheat – **DF**
 - 2. Stem Rusts – Dr. Brent McCallum (AAFC)
 - 3. Leaf Rusts – Dr. Brent McCallum (AAFC)
 - 4. Oat Crown Rust – Dr. Brent McCallum (AAFC)
 - 5. Smuts and Bunts – Dr. Jim Menzies (AAFC)
 - 6. Septoria – Dr. Jeannie Gilbert (AAFC)
 - 7. Tan spot – Dr. Jeannie Gilbert (AAFC)
- VIII Mid Term Exam – October 22, 2010**
- VIII Diseases of Canola – Dilantha Fernando**
 - 1. Blackleg
 - 2. Fusarium-wilt

3. Sclerotinia
4. Clubroot
5. Alternaria

IX Diseases of Special Crops

19. Field peas – Dr. Vikram Bisht (MAFRI)
20. Flax, and Sunflower – Dr. Khalid Rashid (AAFC)
21. Potatoes – Dr. Vikram Bisht (MAFRI)

XIV Final Exam: IN CLASS EXAM: December 2, 2010 - Thursday

Lab Schedule for PLNT0780: Plant Disease Management

Lab 1: How to identify a disease by the help of characteristic disease symptoms on the specific plant part: foliar and stem, root, head or inflorescence? Slide presentation on diseases of field crops.

TA: Abdulsalam Dakouri- **Dates:** Sep 21 (Group-1), Sep 23 (Group_2)

Lab 2: Introduction to fungi: Fungi live with us!! (Collection of images)
Fungicide application: safety, restrictions and precautions.

TA: Abdulsalam Dakouri- **Date:** Sep.28 (Group-1), Sep.30 (Group_2)

Lab 3: Cereal diseases caused by Ascomycetes: symptoms, cultures of causal organisms, video on diseases of cereals.

(1) Fusarium head blight: symptoms, culture of causal organism.

TA: Abdulsalam Dakouri- **Date:** Oct.5 (Group-1), Oct.7 (Group_2)

Lab 4: Diseases of Cereals by ascomycetes and their management

(2) Cereal leaf diseases and Ergot – Tan spot, Septoria, and Ergot diseases

TA: Liru **Date:** Oct.12 (Group-1), Oct.14 (Group_2)

Lab 5: Cereal diseases caused by Basidiomycetes

(1) rusts, smuts and bunts: symptoms and their management.

TA: Abdulsalam Dakouri **Date:** Oct.19 (Group-1), Oct.21 (Group_2)

Lab 6: Diseases of canola; Black leg and white rust disease: symptoms, culture of causal organism and their management

TA: Li Ru **Date:** Oct.26 (Group-1), Oct.28 (Group_2)

Lab 7: Sclerotinia stem rot on canola: symptoms and their management culture of causal organism on PDA, Video on investigation and prediction of sclerotinia stem rot on canola. Disease forecasting for sclerotinia stem rot disease on canola.

TA: Li Ru **Date:** Nov.2 (Group-1), Nov.4 (Group_2)

Lab 8: sunflower and flax: symptoms and their management culture of causal organism, sexual/asexual reproductive structures

TA: Li Ru - **Date:** Nov.9 (Group-1), Nov.11 (Group_2)

Lab 9: Potato Diseases and Disease forecasting for fusarium head blight and potato late blight diseases.

TA: Li Ru - **Date:** Nov.16 (Group-1), Nov.18 (Group_2)

Final Week: Going through Previous material in preparation for final lab exam

TA: Abdulsalam Dakouri & Li Ru **Date:** Nov 23 (Group 1) and Nov 25 (Group 2)

Final Lab Exam. Date: **Nov 30** (Group-1 and Group_2) - Li Ru, Abdulsalam Dakouri and Dilantha Fernando

Final Written Exam for Class: Date: **Dec 2** (Group-1 and Group_2) Dilantha Fernando, Li Ru, and Abdulsalam Dakouri