

IPM-CRSP USAID International Plant Diagnostic Network (IPDN) Workshop Agenda

Advanced Plant Disease Diagnostics for International Partners

The Ohio State University
Ohio Agricultural Research and Development Center (OARDC)
Department of Plant Pathology
1680 Madison Avenue
Wooster, Ohio 44691-4096

August 26 - September 8, 2007

August 25 Saturday	Participants arrive in Cleveland, Ohio Transfer to Wooster
August 26 Sunday	9:00-10:30 am Registration 10:30-11:00 am Opening Session - <i>Sally Miller</i> (Introduction) 11:00-11:30 am Group assignments Distribution of training materials 11:30 - noon IPDN mission and importance of diagnostics in IPM programs regionally and globally - <i>Sally Miller</i> noon-1:00 pm LUNCH 1:00-2:00 pm Sampling/sample submission procedure and contact information for unusual samples - <i>Carrie Harmon</i> 2:00-4:00 pm Free time 4:00 -6:00 pm Barbecue – Miller/Styer home
August 27 Monday	Train the Trainer Program – <i>Carrie Harmon and Sally Miller</i> <i>Six modules, plus special topics</i> Art and Science of Plant Disease Diagnosis – <i>Carrie Harmon</i> Monitoring for high risk plant pathogens – <i>Carrie Harmon</i> Distance Diagnostics through Digital Imaging - <i>Carrie Harmon and Pete Vergot</i>

Communication protocols in case of suspect regulatory pathogen detection and collaboration work flow with regulatory agencies within each region or country – *Carrie Harmon*

Special topics on diagnosis, monitoring, detection of high-risk diseases
Carrie Harmon and Sally Miller

Speakers will present the current NPDN modules, and adaptation/development to regional conditions will be outlined as a group effort. Participants will receive a Powerpoint presentation and instructions on how to conduct and evaluate training activities in their regions.

August 28
Tuesday

Clinic Information Management System (CIMS), Digital Diagnostic Imaging System (DDIS) and Communication Tools –
J. Xin, Pete Vergot, Carrie Harmon, and Tim Momol

OARDC Computer lab – Fisher building

Clinic Information Management System (CIMS) or DDIS Training. Internet access will be provided in a computer lab setting for this hands-on CIMS training. The curriculum will cover these topics: account set up, lab set up, data entry to a submission form, diagnostic data entry, diagnostic approval, reporting and data storage and search mechanisms, digital image entry and use of distance diagnostic module, sample tracking, sample status, alert system for high risk pathogens, and others. Additional instructional tutorials will be provided at the training and on-line at the IPDN web site. Regional personnel who received this training will be able to train more personnel in their labs.

Train on Polycom and possible use of Skype and conference call options.

4:00 p.m. – Field sampling techniques, collect samples – OARDC Farms

August 29
Wednesday

Classical diagnostic techniques

Microscopy, bacterial streaming, moist chamber
Culturing; general and semi-selective media

Identification of Plant Pathogenic Bacteria – *Sally Miller, Z. Kinyua Murimi*

Diagnosis of Diseases Caused by Fungi and Fungal-like Pathogens– key diagnostic fungal structures – *Carrie Harmon, Sally Miller, Fen Beed*

Sources of Diagnostic Information Available on the Internet – *Fen Beed*

During this session, resource persons will provide instruction on classical methods (microscopy, culturing, biochemical tests, morphology, etc.) for

diagnosis of plant diseases caused by bacterial, fungal and fungal-like pathogens. Sources of diagnostic material available on the internet will also be provided. During the hands-on portion, samples collected the previous day will be “triaged” employing basic diagnostic techniques, and cultures will be initiated as appropriate.

August 30
Thursday **Developing Standard Operating Protocols (SOPs) for Pathogen Diagnoses**
- *Carry Harmon*

9-10 AM Introduction of SOPs and standards – why do we use them? Pros and cons of standardization.

10-11:00 am Walk through a template of an SOP, using a US National Plant Diagnostic Network (US-NPDN) SOP as an example

11-12:00 noon Discussion of needs for SOPs – group votes for the SOP we’ll develop in the afternoon (or group decides to do several within small groups)

1-2:00 pm Develop of outline and research for SOP

2-3:30 pm Compilation of research and fleshing out of outline(s)

3:30-5:00 pm Group analysis of product(s) and discussion of relevant issues
Examples: How do you find the best diagnostic data? Who do you communicate with? How do you update the document? Who gets access to it? Other issues relevant in countries of origin?

August 31
Friday

9:00 am – noon **Introduction to Sanitary/Phytosanitary Requirements for Trade**
- *Ron Stinner*

Noon – 1:00 pm Lunch

1:00 -5:00 pm **Follow-up on bacterial isolations, introduction to polymerase chain reaction (PCR) assays (lectures and hands-on sessions)**
Gram reaction
Hypersensitivity test (HR)
Biolog, Fatty acids extraction

Follow up on fungal isolations and moist chambers

Diagnosis of plant diseases by PCR – focus on bacteria, phytoplasmas and fungi – *Melanie Ivey, Sawsan Elateek*

DNA extraction methods – whole cell, CTAB, etc.
Set up appropriate PCR reactions for collected samples, pure cultures,
and known samples

September 1
Saturday

**Serological techniques for fungal and bacterial plant disease
diagnosis - Sally Miller**

Microtiter plate ELISA
Immunostrips
Immunofluorescence

Check HR reactions
Finish PCR assays

September 2-5

Sunday through Wednesday noon

Virus Diagnostics –Sue Tolin and Mark Nakhla

Serology
PCR
Gel electrophoresis
Hybridization methods

September 5
Wednesday

Early afternoon (2:00 p.m.) – depart for Riverdale, MD

September 6
Thursday

Tour APHIS facility, Riverdale, and Washington D.C.
late return to Wooster, Ohio

September 7
Friday

Demonstration of Digital Distance Diagnosis – Nancy Taylor

Follow up of sample diagnoses

September 8
Saturday

Nematode Diagnostics – Marco Aravelo, Parwinder Grewal

**IPDN Project Implementation Discussion for 2007-2008 - Sally
Miller and other resource persons**

September 9
Sunday

Departure

RESOURCE PERSONS

The Ohio State University

Dr. Sally Miller
Ms. Melanie Lewis Ivey
Ms. Sawsan Elateek
Dr. Parwinder Grewal
Ms. Nancy Taylor

University of Florida

Dr. Tim Momol
Dr. Pete Vergot
Dr. J. Xin
Ms. Carrie Harmon

Virginia Tech

Dr. Sue Tolin

USDA APHIS

Dr. Mark Nakhla
Dr. Murali Bandla (Riverdale, MD)
Dr. Mary Palm (Riverdale, MD)

AgroExpertos, Guatemala City, Guatemala

Dr. Marco Arevalo

IITA, Kampala, Uganda

Dr. Fen Beed

Kenya Agricultural Research Institute

Dr. Z. Kinyua Murimi

North Carolina State University

Dr. Ron Stinner