

## 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
	10:30-10:45 am	Introduction – <i>Sally Miller</i>
	10:45-11:00 am	Welcome to The Ohio State University - OARDC <i>Dr. Steven Slack, Ohio State University Associate Vice President, Associate Dean, and Director, Ohio Agricultural Research and Development Center</i>
	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-1:30 pm	LUNCH
	1:30-2:30 pm	Sampling/sample submission procedure and contact information for unusual samples - <i>Carrie Harmon</i>
	2:30-5:00 pm	Free time
	5:00 -7:00 pm	Barbecue – Miller/Styer home
August 27 Monday	9:00 am – 4:00 pm Noon – 1:30 pm	Train the Trainer Program Lunch  <i>Art and Science of Plant Disease Diagnosis – Carrie Harmon</i>

Monitoring for high risk plant pathogens – *Carrie Harmon*

Distance Diagnostics through Digital Imaging - *Carrie Harmon*

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	9:00 am – 3:00 pm	Clinic Information Management System (CIMS), Digital Diagnostic Imaging System (DDIS) and Communication Tools – <i>J. Xin and Carrie Harmon</i>
		OARDC Computer lab – Fisher building
		<i>Clinic Information Management System (CIMS) or DDIS Training.</i> 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.
	3:00 – 5:00 pm	Field sampling techniques, sample collection –OARDC Farms – <i>Sally Miller</i>
August 29 Wednesday	9:00 – 4:00 pm	Classical diagnostic techniques
	9:00 – 10:00 am	Identification of Plant Pathogenic Bacteria – <i>Sally Miller, Z. Kinyua Murimi</i>
	10:00 – 11:00 am	Diagnosis of diseases caused by fungi and fungal-like pathogens– key diagnostic fungal structures – <i>Carrie Harmon</i>

- 11:00 am – noon Sources of Diagnostic Information Available on the Internet – *Fen Beed*
- Noon – 1:30 pm Lunch
- 1:30 – 5:00 pm Hands-on diagnosis of bacteria and fungi – *Sally Miller, Carrie Harmon and 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
- 9:00 – 5:00 pm Developing Standard Operating Protocols (SOPs) for Pathogen Diagnoses - *Carrie Harmon*
- 9:00 – 10:00 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
- 11:00 am - 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)
- Noon – 1:30 pm Lunch
- 1:30 - 2:30 pm Develop of outline and research for SOP
- 2:30 – 3:30 pm Compilation of research and fleshing out of outline(s)
- 3:30 - 4:30 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?

4:30 – 6:00 pm

OSU-OARDC Field Day – Organic Food and Farming  
Education and Research (OFFER) program, OARDC  
research farms, Wooster

August 31 Friday	9:00 am – noon	Introduction to Sanitary/Phytosanitary Requirements for Trade - <i>Ron Stinner</i>
	Noon – 1:30 pm	Group photo (Selby Hall steps), then lunch
	1:30 -3:00 pm	Diagnosis of plant diseases by PCR – focus on bacteria, phytoplasmas and fungi – <i>Melanie Ivey, Sawsan Elateek</i>
		DNA extraction methods – whole cell, CTAB, etc. Set up appropriate PCR reactions for collected samples, pure cultures, and known samples
	3:00 – 5:00 pm	Follow-up on bacterial isolations – hands-on – Gram reaction, biochemical tests, hypersensitivity test (HR)
		Follow up on fungal isolations and moist chambers
September 1 Saturday	9:00 – 10:00 am	Follow-up on PCR gels Use of BLAST for plant disease diagnosis
	10:00 am - noon	Serological techniques for fungal and bacterial plant disease diagnosis - <i>Sally Miller</i>
		Hands-on serology laboratory Microtiter plate ELISA Immunostrips Immunofluorescence (Fulya Baysal)
	Noon – 1:30 pm	Lunch
	1:30 – 4:00 pm	Continue serology laboratory Check HR reactions Finish PCR assays
September 2-5	Sunday through Wednesday noon	<b>Virus Diagnostics</b> – <i>Sue Tolin and Mark Nakhla</i> Serology PCR Gel electrophoresis Hybridization methods

September 5 Wednesday		Early afternoon (2:00 p.m.) – depart for Beltsville, MD
September 6 Thursday	8:00 - noon	Tour APHIS facility, Beltsville, MD
	Noon – 5:00 pm	Washington, DC
	5:00 pm	Return to Wooster
September 7 Friday	10:00 am – noon	Demonstration of digital distance diagnosis – <i>Nancy Taylor</i>
	Noon – 1:30 pm	Lunch
	1:30 – 5:00 pm	Nematode diagnostics - <i>Marco Arevalo, Parwinder Grewal</i>
September 8 Saturday	9:00 am - noon	Developing communications systems and network participation– <i>Sally Miller, Tim Momol</i> Skype conferencing Polycom system Central America/Caribbean Plan of Work To participate in the IPDN-wide POW
	Noon – 1:30 pm	Lunch
	1:30 – 3:30 pm	Nematode diagnostics (cont).
	3:30 – 5:00 pm	IPDN Project Implementation Discussion for 2007-2008
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  
Dr. Fulya Baysal  
Ms. Kathy Bielek  
Ms. Loren Harper

### **University of Florida**

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

### **Virginia Tech**

Dr. Sue Tolin

### **USDA APHIS**

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