

International Diagnostic Capacity Built on NPDN Capacity

Tom C. Creswell and Carrie L. Harmon



Building diagnostic capacity to meet needs:

- ▶ Timely and accurate diagnosis is a critical need
- ▶ Capacity limited by economics and education
- ▶ Export certifications require standards-based diagnosis/ID: IPPC, EPPO, APHIS/PPQ
- ▶ NPDN diagnosticians and collaborators are actively sharing diagnostic skills and knowledge



Benefits to US Agriculture and Environment

- ▶ Invasive organisms don't need a passport
- ▶ Detecting pests there AND here
- ▶ Improved early detection and pest risk assessments
- ▶ Better pest management = stability
- ▶ Standardized training of plant professionals yields greater trust of international agencies

Benefits to the NPDPN

- ▶ Improved diagnostic protocols
- ▶ Improved knowledge of exotic pathogens
- ▶ Positive controls/photos for training on exotics
- ▶ Professional development of diagnosticians
- ▶ Greater visibility of NPDPN

Funding Agencies

- ▶ USDA-FAS and NIFA
- ▶ Dominican Republic - Central American Free Trade Agreement (CAFTA-DR)
- ▶ US Agency for Int'l Development (USAID)
- ▶ IPM Innovation Lab
- ▶ Country-specific funding (internal)
- ▶ Land Grant Universities



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Funding Models

- ▶ Cooperative agreements
- ▶ Supplies, travel and references (equipment funds occasionally)
- ▶ Time (salary savings)
- ▶ Volunteer model (Farmer 2 Farmer): No salary savings



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Broad Scope and Content:

- ▶ Full plant pathology courses
- ▶ Plant diagnostics workshops/short courses
- ▶ Lab development/resources/reference libraries
- ▶ IPM and organic management options
- ▶ Specialized topics



Where in the world?



Where in the world?



Where in the world?





IPDN



CPDN



Country-specific programs



Boots on the ground

NPDN
National Plant Diagnostic Network
Advancing Diagnostics to Meet Plant Health Needs

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Bangladesh: 1985-present

Rob Wick, Robert Marra, Cheryl Smith

- 7 Workshops (>150 attendees)
- Est. first plant diagnostic clinic at BAU



Purdue University: Afghanistan 2010 - 2014

- Plant Pathology Course
- Plant Diagnostics/Insect ID workshops



Afghanistan 2014

- ▶ Based on feedback about local needs
- ▶ Train the trainer, Afghan-led
- ▶ Extension focused materials
- ▶ Trainings at remote locations we could not visit

امراض گندم XI



Stem rust

Fungus: *Puccinia graminis* f. sp. *tritici*

Alternate Host: Barberry نبات زرشک

سرخی ساقه

توضیح عامل مرض: در تمام ساحات گندم کار شایع است. داغ طولی بزرگ نارنجی تا سرخ بالای ساقه توسعه یافته و بعداً به داغ های سیاه که دور دیگر سنبلور ها است انکشاف میکنند. شدت مرض تعلق به برگ مقاومت انواع گندم دارد و چطور مصابیت در ابتدا جایگزین گردد.

کنترل زراعتی: کشت انواع مقاوم، از بین بردن گندم های داوطلب قبل از نموی گندم. از بین بردن میزبان متبادل (بنه زرشک *Berberis*)، کشت گندم بهاری در صورت امکان هر چه و قتر و کشت انواع زود رس

کنترل زراعتی: کشت انواع مقاوم، از بین بردن گندم های داوطلب و بنه زرشک

کنترل کیمیایی: استعمال قارچ کش ها اما اقتصادی نیست

India, Nepal and Honduras

Ann Hazelrigg

- 1999-2012: Winrock / Farmer to Farmer
- IPM, Organic management, grafting
- Women Farmers/Dozens trained



Nepal 2012: Tomato grafting workshop



Cambodia

Margaret Williamson

3 Diagnostics Workshops
>150 trained



Colombia

Tom Creswell and Lina Rodriguez-Salamanca

2-week Diagnostics Workshop
17 participants



Intl Plant Diagnostic Network (IPDN)

- ▶ IPM CRSP, established 2005 with VA Tech leading; UF, OSU, UW, UC-Davis collaborating



- ▶ West Africa - Benin
- ▶ East Africa - Tanzania
- ▶ Central America - AgroExpertos - Guatemala
- ▶ ☆ = Hub lab



US-Based Training: IPDN Advanced Diagnostics Training for International Partners Ohio State University



SOP development



Lab exercise: diagnosing field samples

US-Based Trainings: IPDN Advanced Diagnostics Training: Ohio State University, 2007-08

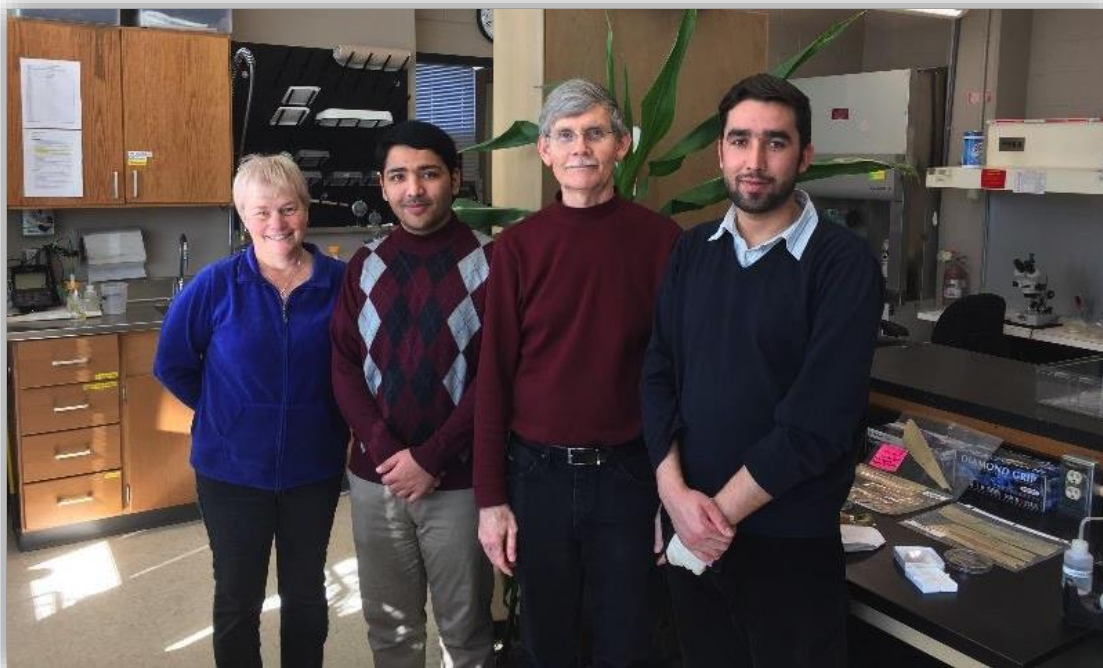


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US-Based Training: Purdue 2009-14



Advancing Afghan Agriculture Alliance (A4)
USDA Sanitary and Phytosanitary Project (SPS)

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Challenges of working in Developing Nations

- ▶ Travel time - personal safety - health
- ▶ Inadequate infrastructure
- ▶ Communications
- ▶ Lack of sustainability: Projects end when \$\$ is gone
- ▶ Political roadblocks



Lessons Learned

- ▶ Ask trainees to set focus
- ▶ Set dates early
- ▶ Language: Co-teach or have a good translator
- ▶ Bring everything you need!
- ▶ Discuss sustainability while in country
- ▶ **No matter the challenge, good training can happen!**

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What's Next?

- ▶ Develop new online/physical diagnostic protocols
- ▶ Share diagnostic protocols with international and domestic partners
- ▶ Facilitate connections between experts
- ▶ Encourage use of domestic and regional expertise and resources
- ▶ Encourage international information flow
- ▶ Coordinate activities (LGUs, funding agencies, disciplines, local agencies)

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Where Is Coordination Possible?



Thank you!



Want to be part of the solution?
Visit our posters and put your name on the “ride board”:
Poster 48: BEYOND ‘NATIONAL’: THE NPDN AT WORK ABROAD