

# Developing a student-centered disease diagnostics teaching resource, the case of CBSD

Shahasi Athman, Mallowa Sally,  
Abucheli Grace, Korir Nicholas & Miano  
Douglas



World Congress on Root and Tuber Crops  
Nanning, Guangxi, China, January 18-22, 2016

# **ACTIVE LEARNING**

**What I hear, I forget**

**What I see, I remember**

**What I do, I understand**

# Case Study Teaching



**APS***net*

Overview...

Search the Site

Editorial Board

Information for Students

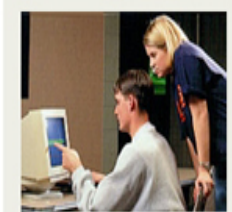
**Education Center**  
The Plant Health Instructor

**K-12 Plant Path-Ways to Science**

**Introductory Plant Pathology**

**Advanced Plant Pathology**

**Online Courses**



# Objectives

- Test a case study teaching method for disease diagnostics using CBSD as the case
- Assess student appreciation: lecture vs case study method
- enable students to apply theoretical knowledge to solve real life problems
- Gauge students appreciation of the CBSD threat, symptoms to look out for and management options available.

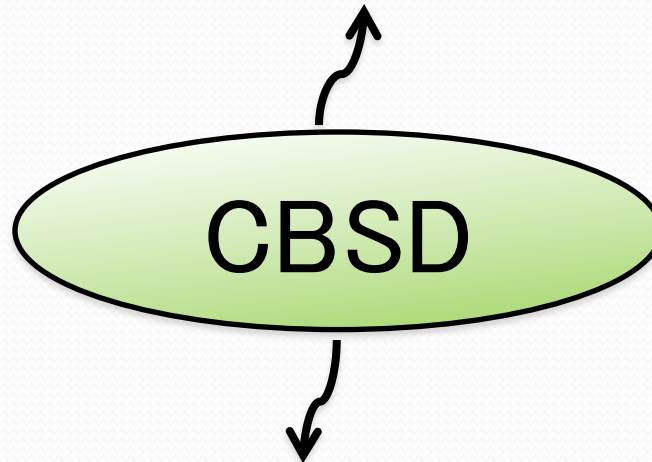
# Develop tool - CBSD Diagnostics

Have students take role of family/ professionals and in context of “real life scenario”. Ask relevant questions (experts) and offer possible solutions



# The Case

Neema, Opio, Opolot and Dr. Adungosi..  
Disease outbreak, NGO, extension & research  
work on outbreak - use of alternate crops?  
resistant varieties.



**Class room management:**  
Preparation, review, discussion,  
“tweeting”, experts response,  
presentation, review, reflection  
exercise

# The Crisis

- Neema's cassava tubers are rotten and inedible
- The entire self help group has lost their cassava crop to a mysterious disease
- Opolot's tubers are mildly diseased
- Opio: blamed by Neema and group for providing 'bad' cuttings
  
- Solutions:
  - Need to identify what the problem is
  - Exonerate Neema and Opio from blame
  - Create awareness and offer management options for CBSD

# UGANDA





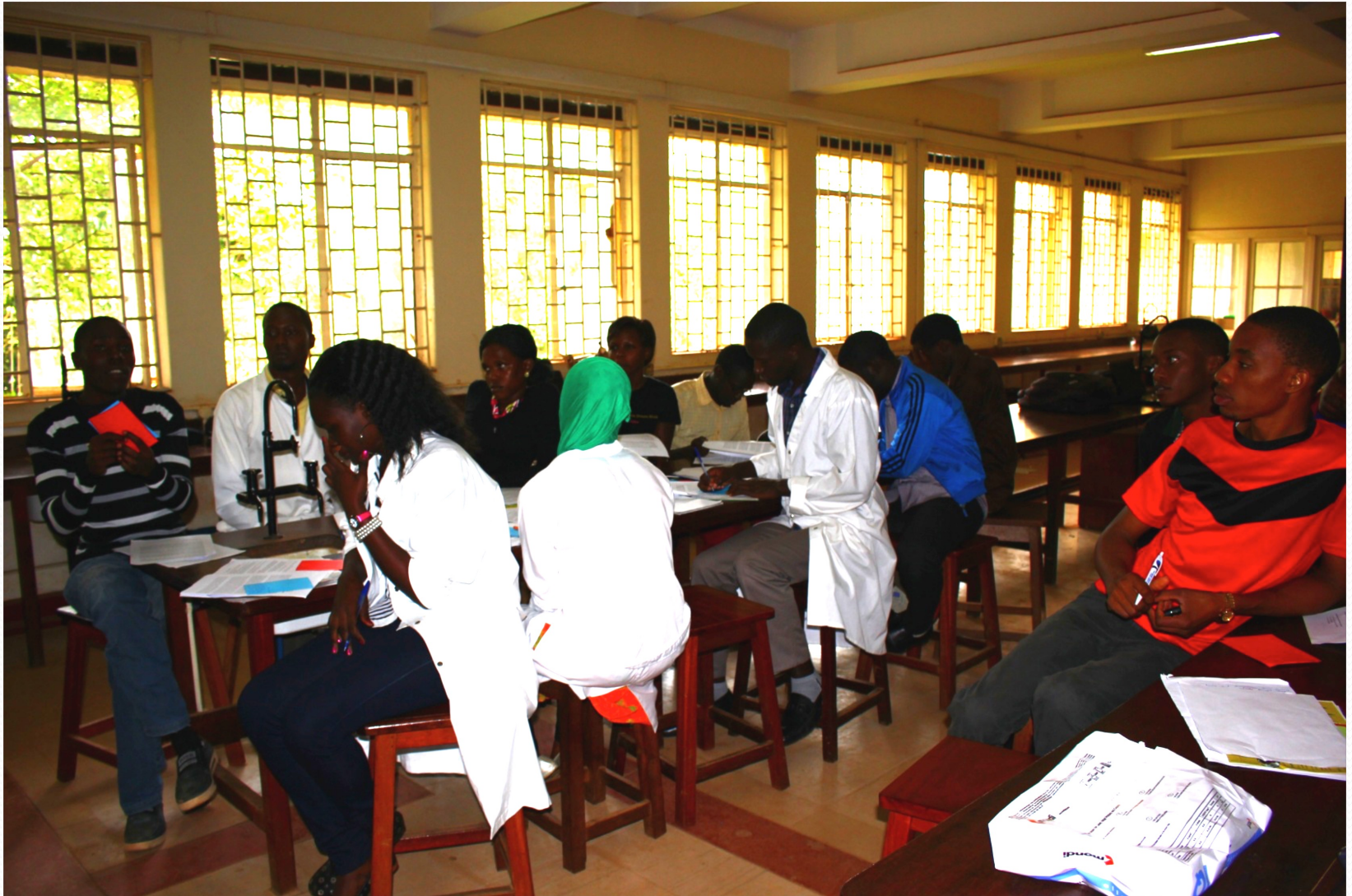
# KENYA



# Reading the case



# Review - Small groups



# Presentation and role playing

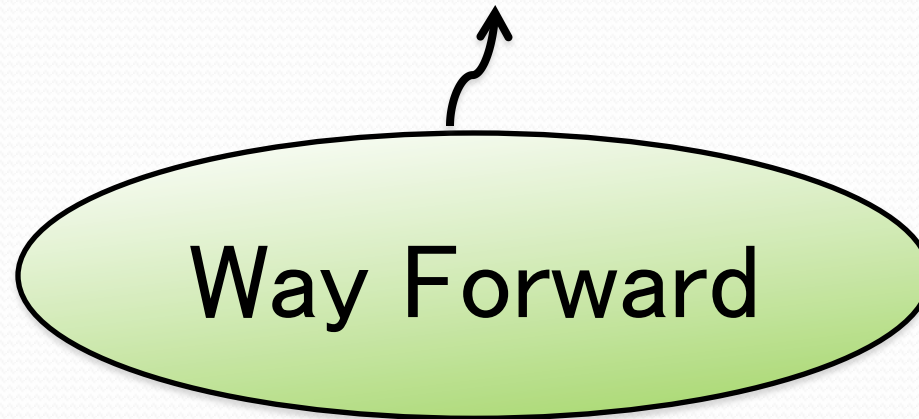


# Field visit



# Outcomes

Successful in developing tool



# Active learning - tool for everyone!

**BASF**  
The Chemical Company

Plant Health – Pillars of Plant Health

3 Pillars of Plant Health

## F500 Improves Plant Health in 3 Ways

DISEASE CONTROL	GROWTH EFFICIENCY	STRESS TOLERANCE
<ul style="list-style-type: none"><li>• Excellent control of major foliar diseases</li><li>• Increased tolerance to bacterial and viral infections</li></ul>	<ul style="list-style-type: none"><li>• Better use of nitrogen fertilizer</li><li>• More efficient photosynthesis</li></ul>	<ul style="list-style-type: none"><li>• Drought</li><li>• Frost</li><li>• Hail</li><li>• Heat</li><li>• Ozone</li></ul>

SEED QUALITY    HEALTHIER PLANTS    STALK STRENGTH

# YIELD

HELPING YOU GET THE MOST OUT OF EVERY ACRE™

3 OF 4

<http://edu.basf.us/planthealth/PC/start.html>

## Data Inquiry



"Okay, now we need to analyze some data and address several critical questions. I have some data sources on the right that we'll use. Click on them to enlarge. We'll go through the inquiry process together. Please do your best in answering the questions and I'll give you feedback."

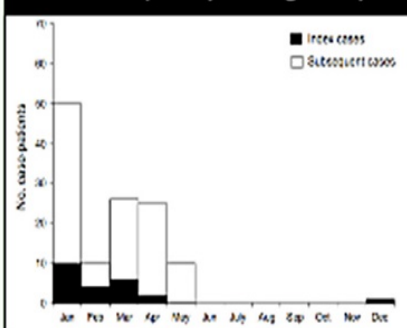
[Begin Inquiry](#)

## Data Sources (click to zoom in)

Summary Report of Cases in Bangladesh, 2001-2010

Year	Place	Number of cases	Male (%)	Dead (%)
2002	Dhaka	15	2 (13)	0 (0)
2003	Chittagong	12	2 (17)	0 (0)
2004	Cox's Bazar, Rajshahi, Dhaka, Barisal, Moulvibazar, Moulvibazar, Moulvibazar	25 (12-10)	22 (74)	22 (74)
2004	Faridpur	39	25 (64)	27 (70)
2005	Barisal	12	7 (58)	11 (92)
2007	Dhaka	7	2 (29)	5 (71)
2007	Dhaka	8	2 (25)	5 (63)
2008	Dhaka	4	2 (50)	4 (100)
2008	Dhaka	6	2 (33)	5 (83)
2010	Faridpur	11	2 (18)	9 (82)
2010	Dhaka	6	2 (33)	5 (83)
Total		146	22 (15)	109 (75)

Disease frequency throughout year



Outbreak Map



Luby, et al., 2009



# Sponsors Of the World Congress on Root and Tuber crops

# Thank you

WORLD  
CONGRESS  
ON ROOT AND  
TUBERCROPS



WORLD  
CONGRESS  
ON ROOT AND  
TUBERCROPS



BILL & MELINDA  
GATES foundation



International Center for Tropical Agriculture  
Since 1967 Science to cultivate change



A member of the  
CGIAR Consortium



RESEARCH  
PROGRAM ON  
Roots, Tubers  
and Bananas



NEXTGEN  
CASSAVA





**Thank You**  
**Asante Sana**  
**谢谢**