

Developing an undergraduate level case study on cassava viral diseases

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INTRODUCTION

An undergraduate teaching resource on cassava brown streak virus disease (CBSD) was developed. It is set in an African village with several characters including growers, extension workers, and researchers working on a CBSD outbreak. CBSD is a devastating viral disease that threatens food security in East and Central Africa. The disease is spread by the whitefly *Bemisia tabaci* and also by planting diseased cuttings. CBSD symptoms are similar to those caused by some cassava nutrient deficiencies as well as leaf senescence, and accurate symptom recognition can be difficult. It is therefore important to develop diagnostic tools for accurate identification of the disease, and ensure that key people involved in managing the impacts of CBSD have easy access to these tool.



Foliar Symptoms of CBSD



CBSD Root Symptoms

OBJECTIVES OF CASE STUDY

Develop an undergraduate resource to train students on CBSD.
Engage students using a real world scenario to think critically about CBSD and its management.

BACKGROUND

The case study was tested at four universities, Makerere University (Uganda), Chuka University, Kenyatta University and University of Nairobi (Kenya) to students of plant pathology (26), agricultural education (14), field crops management (63) and virology (30) respectively.

OUTLINE OF THE CASE STUDY

- Provide background material
- Review comprehension of background
- Introduce case study exercise
- Read the case
- Small group discussions
- Presentations and classroom discussion
- Instructor summary of main points
- Review of exercise
- Field visit (where possible)



Group discussion – Kenyatta University



Group Selfie – University of Nairobi

OUTCOMES

A student centered CBSD case study was developed that utilized videos, small group and class room discussion, and role playing in presentation of discussions. Though new to these forms of instruction more than 90% of the students appreciated the interactive nature and the “real world scenario” approach of the exercise.



Case study testing locations in East Africa (Red)



Makerere University



Chuka University

SUMMARY

The case study will be submitted for publication in the *Plant Health Instructor*, an online educational journal. A Web based version of the case study is being developed in collaboration with University of Nebraska-Lincoln. Students recommended more information on the management section and possibly follow-up modules with a focus on details of the virus, the vector, and molecular diagnostic tools. In larger classes the classroom presentations were time consuming, an adaptation in the classroom management will be made to account for this.

ACKNOWLEDGEMENT

Funding for the study was provided by an APS Office of International Program 2015 Global Experience Award, the Donald Danforth Plant Science Center and Iowa State University.

