

**USDA NIFA Higher Education Challenge Annual Report Year 3
(16 Sept 2009 to 15 Sept 2010)
University of California-Davis
Dr. Robert L. Gilbertson, Co-PI for UC-Davis**

1.0 Summary. These two externs travelled to Mali with Dr. Robert L. Gilbertson to learn about agricultural production in this country as well as aspects of the culture. Together, the group took part in a comprehensive survey of vegetable crops for symptoms of virus infection, learned about potato production and participated in the seed potato project. This provided the externs and opportunity to apply their knowledge in meeting with farmers in Borko about the possibility of producing seed potatoes. The externs did a great job, learning that the farmers were very interested in the concept of producing seed potatoes, but also that they needed more training to understand how seed potatoes could be produced in their agricultural system and how the seed potatoes fit into the overall potato production system in Mali. In addition, the externs learned much about the role of women in agricultural and Malian society. Some highlights of the trip were visits to a Dogon village and meeting with potato farmers in Sikasso in southern Mali. In addition, the externs applied their knowledge of Bambara (a local language) and interacted with a wide variety of Malian people. Overall, it was a highly productive trip and the externs did an outstanding job.

2.0 Publications. The following publications were, in part, the result of surveys conducted for virus diseases in vegetable crops. Two previous UC Davis externs participated in some of this work.

Chen, L.-F., M.R. Rojas, Kon, K.T., Gamby, B. Xoonostle-Cazares, and R.L. Gilbertson. 2009. A severe symptom phenotype in tomato in Mali is caused by a reassortant between a novel recombinant begomovirus (*Tomato yellow leaf curl Mali virus*) and a betasatellite. *Mol. Plant Pathol.* 10: 415-430.

Kon, T., M.R. Rojas, I.K. Abdourhamane, and R.L. Gilbertson. 2009. The roles and interactions of begomoviruses and satellite DNAs associated with okra leaf curl disease in Mali, West Africa. *J. Gen. Virol.* 90: 1001-1013.

3.0 Products. Three trip reports, 2 student reports and 1 faculty.

4.0 Outcomes. Samples of virus-infected plants were collected and tested. Virus infections were confirmed in numerous crops including cassava, okra, peppers, and sweet potato. This information will be important for agriculture in Mali.

5.0 Dissemination. None

6.0 Future Plans. We will continue characterize viruses associated with the samples collected and use this information in the development of integrated pest management packages for potato and tomato.

7.0 Impact. This was a major life experience for the externs and the virus identification will help in the improved production of vegetable crops in Mali.

8.0 Extern contact information

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