



Trip Report

Mali, Senegal,

4 – 26 March 2011

IPM CRSP West Africa Regional Program

IPM CRSP Associate Awards:

Mali: Building Local Capacity in IPM Solutions

USAID/Mali Associate Cooperative Agreement No. 688-A-00-10-00015-00

Development and Promotion of Integrated Management of Mango Pests in Senegal

USAID/Senegal Associate Cooperative Agreement No. 685-A-00-08-00065-00

IPM CRSP Africa Food Security Initiative (IPM CRSP AFSI)

USAID/EGAT Associate Cooperative Agreement No. EDH-A-00-08-00015-00

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Country(s) Visited/Dates of Travel: Senegal, Mali

Traveler Name and Affiliations: Larry Vaughan, IPM CRSP Associate
Program Director

Purpose of Trip:

West Africa regional program – 1. Assess cabbage pests in Senegal and discuss research tasks for Year 3.

Mali associate award – 1. Carry out a pest assessment associated with a rapid gender assessment in the Dogon Plateau to document men and women’s roles in vegetable production and marketing. The focus crops were shallots. In one village where potatoes are important, potatoes were included. 2. Facilitate the implementation of a four-day acarology training for Malian researchers at IER. 3. Meet with the new contact person at the Office du Niger to advance the formalization of a partnership. 4. Observe the ongoing tomato field trials in Niono carried out by IER.

Food Security Associate award – Carry out an assessment of cabbage and tomato pests in Senegal and Mali. Evaluate horticultural laboratory at ISRA in Dakar for IPDN capacity building. Assess the level of tomato virus and bacterial wilt in the Dagana area of the middle Senegal River Valley.

Mango IPM – Have close-out meeting with USAID/Senegal. Discuss partnership during no-cost extension period.

U.S. Co-voyagers: Maria Elisa Christie – VT/OIRED Program Director for Women in International Deveopment (rapid gender assessment)

Don Mullins – West Africa regional program leader

R. Muniappan, IPM CRSP Program Director,

Beverley Gerdeman, Washington State University (acarology training)

Bob Gilbertson, UC Davis department of plant pathology

Doug Pfeiffer, VT entomology department (cabbage IPM package),

Sites Visited:

Senegal – Bayakh, Bokhal, Dagana, Dakar, Fass Boye, Gae St. Louis, Potou, Thies.

Mali – Bamako, Bandiagara, Borko, Boro, Goun daka, Ségou, Mopti, Niono Yawkanda

Description of Activities/Observations:

I departed the United States *Friday 4 March*, arriving with Don Mullins and Doug Pfeiffer in Bamako on Saturday evening the 5th. Maria Elisa Christie arrived Sunday evening. We departed with our Malian colleagues Aminata Dioucouré and Mama Diarra for Segou. Aminata and Mama guided the team By 8:15 Tuesday morning *8 March* we were in the village of Goundaka, where we carried out the first rapid gender assessment to map the production path of onions and tomatoes. In the late afternoon we repeated the exercise in the village of Yawakanda, spending the night in Bandiagara. We went to Borko, on *Wednesday 9 March*, and Boro on *Thursday 10 March*.

The shallots in fields at all four of the villages were healthy. There were no signs of disease or onion thrips. Thrips is a was a common insect pest that we expected to be present. Little to no pesticide use was reported by shallot growers in the four villages visited. Growers in Yawakanda reported a shallot disease the previous year and used a pesticide, but none were used this year. Shallots are grown without the need for pesticides. Tomatoes were not grown in Borko or Boro. Tomato virus was not a serious problem. Distinct differences between the villages in gender roles were documented by mapping and discussing the path of production from the steps of preparing land, buying inputs and planting through weeding, harvest, transport, and sale. These observations are documented in a separate report prepared by IER.

On *Saturday 12 March* we went to Baguineda with Dr. Kadidiatou Touré Gamby, head of the IER/Sotuba fruit and vegetable laboratory and her research technician Abdoulaye Camara. We met Moussa Noussourou to visit his tomato varietal trial. Five varieties had come from Bob Gilbertson. The remainder came from the West Africa Seed Association (WASA).

On **Sunday 13 March**, Doug Pfeiffer and I flew to Dakar. Don Mullins returned to the United States. On Monday morning I met R. Muniappan at the airport. The three of us went to USAID to meet Aminata Badiane. Kemo Badji, national coordinator of the fruit fly project, and Mour Gueye associate director general of ANCAR met with Aminata as well. We discussed close-out issues including the urgency of getting a final invoice from ANCAR. At noon we went to the general headquarters of ISRA to meet the scientific director, Alioune Fall. Afterwards we visited the laboratory at ISRA's horticultural research center, CDH. There we met Dienaba Sall Sy, who was suggested as the Senegalese counterpart for developing the IPM package for cabbage. I picked up Bob Gilbertson from the airport in the evening.

On **Tuesday 15 March** we took a field trip through the southern Niayes zone – an area of smallholder commercial vegetable production. We were accompanied by Dienaba Sy and Papa Demba Kane. In Bayakh in the *communauté rurale* of Djender we found bacterial black rot (*Xanthomonas* sp.) in cabbage in one field (seed-transmitted). There was lots of cabbage damage caused by *Plutella xylostella*. There were low levels of *Helicoverpa armigera*, and low levels of *Spodoptera littoralis* – neither at damaging levels. In a second field, damaging levels of *H. armigera* were found on pepper. African cassava mosaic virus (whitefly-transmitted) was observed on cassava. Mites were also found. Potato early blight (*Alternaria solani*) was noted by Gilbertson as the worst infestation he had ever seen. He said the most likely source of infection is debris from last year or from alternate hosts.

Wednesday March 16: Whereas no damage by *Hellula undalis* was found the prior day, we found damaging levels in cabbage on a field trip further north on Wednesday day. Five percent of cabbage plants had multiple dwarf heads caused by destruction of the apical meristem by *H. undalis* larvae. Doug Pfeiffer returned to Dakar to depart the next day. The rest of us continued to the village of Potou where we saw lots of *P. xylostella* damage to cabbage and *H. undalis*. We spent the night in St. Louis.

Thursday March 17 We went east to Dagana. We met the president of the regional tomato committee at the cannery in Dagana. The tomato committee represents all stakeholders in the industrial tomato value chain. It determines the tomato varieties to be planted and sets annual input packages. Therefore it could be a very important partner in the transfer of new pest management techniques in the Senegal River Valley. We went to fields around Dagana where Papa Demba Kane and I have looked at bacterial wilt on a prior trip. We also looked at bacterial wilt in the village of Bokhal and Gae. The team discussed management options to slow the spread of the isolated, but expanding areas of infested soil. Seedling production using nursery pots was suggested as an alternative to the bare root seedling bed that is used there.

We returned to Dakar **Friday March 18**. On the team's return trip to Dakar I was let off in Thiès to meet with Dr. Saliou Ndiaye. Saliou led the mango fruit fly activities on behalf of the *Ecole Nationale Supérieure d'Agriculture* (ENSA). Kemo Badji, national coordinator of the mango fruit fly association, came from Dakar to meet with us. Also attending were Assa Balayara (PhD graduate student supported by the project at the University of Dakar) and Bineta Mbengue Dieye (ENSA graduate student supported for a DEA by the project) and Mour Gueye from ANCAR. Ensuring a timely final invoice from ENSA and an orderly end of the project was a topic. Afterwards, Kemo, Assa, and I paid a courtesy visit to our database programmer, Marie Dieng, who was on maternity leave. Muni and Bob Gilberston had a meeting with Emile Coly, director of DCH, and Dienaba about what the three of them observed during the field trip. They discussed the research activities that should follow. Upon my return to Dakar, Muni and I had an evening conference call with Joyce Jatko, Harry Rea, and Walter Knausenburger of USAID regarding the environmental assessment being done for a biocontrol introduction against the invasive weed *Parthenium hysterophorus* in Ethiopia.

Saturday March 19: I picked up Beverly Gerdeman from the airport. She accompanied Bob, Muni and myself to meet Kemo Badji, chief entomologist of the Senegal plant protection service (DPV), and Lamine Senghor, head of DPV's plant pathology laboratory. We went to three villages looking at vegetable fields: Notto Gouye Diama, Keur Lémou, and Fass Boye Darou Khoudoss, Darou

Ndoye. There are lots of *Fusarium* sp. Vascular wilt on tomato. *Hellula undalis* was found by Muni on eggplant, but we found no multiple heads on cabbage. In African eggplant (jakatou) we saw a fungal spot disease (possibly *Septoria*). A few potato tuber moth (*Phthorimaea operculella*) were found in pheromone traps set by Kemo for the monitoring activity in the W. Africa regional program. The ANCAR agent at Fass Boye said that potato tuber moth was a problem in potatoes there, but we didn't see any damage ourselves.

On **Sunday 20 March**, Beverly, Bob, Muni, Papa Demba Kane, and I flew to Bamako. Beverly and Papa went to carry out the acarology training for IER. On Monday 21 March I went with them to IER/Sotuba to deal with final preparations for the training. Madame Gamby and I also had a long afternoon meeting going over activities in the three CRSP initiatives for which IER is an IPM CRSP partner.

Tuesday 22 March. Muni, Bob, Moussa Noussourou and I go to Segou in the first leg of a brief field evaluation of tomato diseases in the Office du Niger. In the afternoon we surveyed some vegetable fields in two *quartiers* of Segou (Sebouyou and Senoukourabada) along the Niger River just outside of Segou. We found economically important broad mite damage in African eggplant and spider mites on papaya. Downy mildew was apparently being favored by overhead watering that was observed, humidity due to proximity to the river, and shading. In Senoukourabada the cabbage looked healthy. There was little to no diamondback moth (*P. xylostella*) damage. Fields were being sprayed primarily against aphids, but also diamondback moth. Cartap was the chosen product. It was sprayed every seven to ten days. If aphid pressure was low, we were told by growers that they will skip sprays. Muni found heavy spider mite damage on green beans.

Wednesday 23 March: We went to Niono north of Segou to see the tomato variety trials that Moussa Noussourou had set out. We met Director Kodio of the IER station in Niono. The growers at Nango Sahel and Dieynaba were pleased with several varieties.

Thursday 24 March. Before returning to Bamako, I met with Ilias Goro, the person recently appointed ON's director general as the contact person for the

Mali associate award. We discussed the role of ON, primarily pesticide safety training and promotion of the area-wide tomato no-host period to protect against whitefly-transmitted tomato yellow leaf curl virus. I received a formal letter acknowledging ON's intention to partner with Virginia Tech on the project. Ilias helped us get access to a microscope at the regional hospital so that Muni could check some empty rice heads collected the day before to see if white-tip nematode was present. A Madame Diallo, director of the malaria testing laboratory graciously allowed us to work in her laboratory. We did not find the nematode. Muni decided we need to do further examination, giving more time to soak the empty glumes. We should watch the rice field in Niono where the samples were taken.

Friday 25 March: Bob, Muni and I went to the headquarters of WASA to meet the chief of party, Ram Shetty, and the national coordinator Youssouf Traoré. My interest was discussing the cooperation between IPM CRSP and WASA to promote certified seed production by women's groups in Sikasso. In the afternoon I prepared soil samples collected in Sikasso by IER. for nutrient analysis. We departed Bamako late Friday night, returning to the U.S. on Saturday **26 March.**

Abbreviations:

AFSI. African Food Security Initiative. (IPM CRSP associate award)
ANCAR. *Agence Nationale de Conseil Agricole et Rural* (Senegal)
AOTR. Agreement Officer Technical Representative
CDH Centre de Développement Horticole (ISRA. Senegal)
DEA *Diplôme d'Etudes Avancées*
DPV. *Direction de la Protection Végétaux* (Senegal)
DRA. *Direction Régionale d'Agriculture* (Mali)
DNA *Direction Nationale d'Agriculture* (Mali)
ENSA. *Ecole Nationale Supérieure d'Agriculture*. University of Thies (Senegal)
IER. *Institut d'Economie Rurale* (Mali)
IICEM. *Initiative Intégrée pour la Croissance Economique au Mali*
ISRA. *Institut Sénégalais des Recherches Agricoles*. Dakar (Senegal)
ISRA/CDH – ISRA *Centre de Développement Horticole*
OIREC. Office of International Research, Education, and Development. Virginia Tech
OPV *Office de Protection Végétaux* (Mali)
USAID. United States Agency for International Development
VT. Virginia Tech. Blacksburg, Virginia USA
WASA. West African Seed Alliance

Contact List:

First Name	Last Name	Institution
Aminata	Badiane	AOTR, Mango IPM associate award. USAID/Senegal
Kemo	Badji	DPV
Assa	Balayara	UCAD
Abdoulaye	Camara	IER/Sotuba
Emile Victor	Coly	Director, ISRA/CDH
Mama	Diarra	IER/Sotuba sociologist
Marie	Dieng	ENSA
Aminata	Doucouré	IER/Sotuba sociologist
Alioune	Fall	Scientific Director, ISRA
Kadidiatou	Gamby	Chief of the Vegetable and Fruit Research Laboratory. IER/Sotuba
Ilias	Goro	Office du Niger, Directeur d'Appui du Monde Rural
Mour	Gueye	ANCAR
Papa Demba	Kane	ISRA research technician
Saliou	Ndiaye	ENSA
Moussa	Noussourou	IER scientist
Bourema	Outtara	OHVN chief accountant
Ram	Shetty	WASA Chief of Party
Dienaba	Sy	ISRA entomologist
Sidiki	Traoré	IER/Sotuba
Youssef	Traoré	WASA National Coordinator
Peter	Trenchard	Team Leader for Economic Growth. USAID/Senegal