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Trip Report

Senegal.

26 August – 12 September 2010

IPM CRSP Associate Awards:

Development and Promotion of Integrated Management of Mango Pests in Senegal

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Country Visited: Senegal

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

Purpose of Trip: Mango IPM associate award – Review implementation of area-wide field trials and review data. Field trip to important mango production zones in the south (Casamance) and the north (Niayes and Diass in the region of Thies).

Food Security Associate award – Meet with coordinator at ISRA to follow-up on that status of field activities being carried out on tomato virus management, and rice production.

Sites Visited: Dakar, Senegal; Ziguinchor/Basse Casamance, Kolda/Haute Casamance, Region of Thies (Diass and Pout)

Description of Activities/Observations:

Thursday August 26 – Departed from Roanoke, Virginia for Dakar via Washington DC.

Friday August 27 – I arrived in Dakar at 0530h. I had a briefing meeting at USAID at 0930h to meet with Aminata Badiane, project AOTR. Accompanying me was Kemo Badji, project national coordinator and chief of the entomology laboratory at DPV; Simone Ndene, representative of the Technical Director of ANCAR; and the videographer Baba Sene. We also met with USAID/Senegal’s communication coordinator Susan Telingator. The first order of business was discussing finalization of the fruit fly video, including compliance with the USAID branding plan. Baba and Susan reviewed the latest draft of the video together. Baba gave me a copy to review later. Aminata discussed reporting, workplan development, and the fit of the project into the new Feed the Future Initiative. We discussed our field trip itinerary and the anticipated outputs of the field trip. I talked with Sarah Banashek, USAID/Senegal education officer, regarding the visa application process for a student who will be starting short-term training at Virginia Tech in mid October. In the evening I talked with Thomas Anderson, who was carrying out a consultancy on pesticide safety for the Wula Nafa project via the Farmer-to-Farmer program. I pointed him to online IPM CRSP pesticide safety training resources in French and said that I would search for some copies of a locust ID/pesticide safety booklet that Virginia Tech printed during the locust biopesticide associate award that USAID/Senegal funded in 2005 through 2007.

Saturday August 28 – Kemo and I met to review the preliminary field data for the three large-scale blocks in DPV’s field trials for area-wide fruit fly management. Outside the treatment blocks, DPV had set up temporary monitoring stations outside the blocks to collect data on fruit fly species diversity and population dynamics. These data were reviewed in the context of estimating damage in untreated orchards. We also discussed

progress and looked at the initial data from two smaller experiments. One experiment tests the longevity of attractiveness of different doses of the Malatrap pheromone lure against *Bactrocera invadens*. The experiment measures the efficacy of Malatrap versus Mallet pheromone lures. Although the UCAD students that Kemo is supervising on these experiments must write their reports in September, we agreed to continue data collection until the pheromones' attractiveness is exhausted.

Sunday August 29 – report writing

Monday August 30 – Travel to Ziguinchor in DPV vehicle. We stopped by Thies on the way in order to deliver a dissecting microscope for Assa Balayara to use in her examination of the reproductive status of trapped female flies. In Kaolack we delivered some training books for a Farmer-to-Farmer consultant doing pesticide safety training for agents of USAID's Wula Nafa project. The booklets were printed through a previous IPM CRSP associate award. They include the IPM CRSP pesticide safety curriculum in French and Wolof.

Tuesday August 31 – Kemo and I briefly visited the NGO APRAN in the morning. We talked with the Executive Secretary, Demba Keita about the plan for visiting sites where his agents worked with our project. We then went to ANCAR/Ziguinchor regional headquarters. After a roundtable meeting about the status of implementation during the recently finished mango season, the team visited treatment sites in the villages of Djibelor, and Loudia Oulof along the south side of the Casamance River.

Traveling with us from ANCAR/Ziguinchor were – Abraham Kabou, Henry Diatta, and the project contact person Raphael Biagui along with Simon Ndene from ANCAR headquarters

Djibelor monitoring site: Pheromone traps looked good. No torula traps in place Raphael said he had sent a request through ANCAR for torula. We several large tephritids in the methyl eugenol trap that were later identified at DPV as *Ceratitis ditissima*. The traps were hung in mango trees, which did not follow the new protocol. It was explained to us that the trap had been moved out of the orchard but the grower had moved them back among the mango trees.

Village de reclassement social de Djibelor – Large scale treatment site. Here there were also no torula traps. Only the sex attractant Malatrap was used. There were few mangoes this year, due to the lack of a cold period to induce flowering. By the time that the Success Appat bait attractant arrived, there was no point in using it. It is being saved for next year. Also because of the lack of mangoes it was not possible to do the damage assessment by observing mangoes. Even if there had been mangoes, the experimental protocol had not been distributed for the agents to follow. The bottle traps were not of the standard model recommended in the protocol, but they were acceptable. ANCAR insisted that the growers provide their own bottle traps as a sign of commitment. ANCAR also chose to have farmers make the traps because ANCAR/Ziguinchor had not received its part of the project advance to pay for materials. I brought thousands of cigarette filter

blanks to Senegal to serve as trap wicks, but all of these traps use cotton balls. Apparently the wicks are sitting at ANCAR/Ziguinchor. We reviewed with the two accompanying farmers (village chief Faye and producer Joseph Diatta) the project's preferred design (bottle with open bottom and attachment wire running between the cap and bottle threads instead of through a hole in the cap). We ended the day at the ISRA research station at Djibelor, where we met with the director Saliou Djiba to discuss potential partnership if we obtain a second phase of the project.

Wednesday September 1 – Team: Babacar Diatta, ANCAR Diouloulou, Raphael Biagui ANCAR/Ziguinchor, Simon Ndene ANCAR headquarters, Kemo Badji, Larry Vaughan. On this day we went north of the Casamance River along the road between Bignona and Kafountine.

Daroulkhairy: We picked up Babacar Diatta, the ANCAR agent based in Diouloulou. In this village there were 53 growers who set out 200 pheromone traps among their orchards. We then went to Malanthiam, a nearby village that is another of the long-term survey sites. In the methyl eugenol trap we found some *Ceratytis ditissima* as we had at Djibelor. Before leaving we visited the Cherif Aidara, the local marabout, who blessed our work.

Kaba (southern end of Diana just north of Kafountine). ANCAR agent Maguette Diémé. We had a growers' meeting with about 15 male mango producers. ANCAR had required the growers contribute their own bottle traps to show commitment. Upon receiving the materials, they set out 230-250 Malatrap traps set of villager design (closed-bottom, wire through cap, often painted yellow). They sprayed a little Success Appat until the mango harvest was over, then they stopped. Maguette never received the protocol for the experiment. A grower noted a disease on citrus trees that causes exudations from the base of the trunk with eventual death of branches and then the whole tree. Photos were taken.

Diana. Long-term monitoring station. We visited the monitoring site in Sambou's orchard, noting that, like the other monitoring stations we had visited thus far (and for the rest of the trip) none of the traps had been moved out of orchards as per the new protocol.

Thursday September 2 – Darsalam in the arrondissement of Nyassia. This is one of the principal villages in APRAN's intervention area. ANCAR does not have agents there. APRAN agents worked with DPV to install a fruit fly management program this year. We visited the orchard of Bakary Bodiane. He had 12 pheromone traps set. Cotton balls rather than cigarette filters were brought. Among two torula monitoring trap we found many small tephritids but only one *Bactrocera invadens*. As elsewhere in the area, harvest was in mid July, just at the materials were being distributed. In the pheromone traps we did find *B. invadens*. We also found a large tephritid unknown to us. We collected a few to bring back to DPV. Darsalam is well suited to be considered an are-wide management area, it has estuary and rice fields on three sides of the village. Whereas most management areas must comprise several villages, Darsalam can be a management area itself. It is, however, not a large area of production. Five producers had been provided materials for male annihilation trapping. There are about twenty small

growers. Therefore, a zonal approach was not achieved. Mangoes, which were few this year because of poor flowering, were worth 6500CFA a “case”, of which the producer sold 40 to a banana truck wholesaler. The mangoes were sold green, about one week before they would normally be harvested in order to avoid the fruit fly.

We returned to Ziguinchor to have a debriefing with ANCAR regional director Mamadou Dione and his staff: Raphael Biagui (mango point person), Sihounke Diatta, technical service chief, Simon Ndene ANCAR/Dakar, Kemo Badji, and myself.

Friday September 3 – 9:00am – 1300. Meeting with ANCAR/Kolda. By luck, the ANCAR agents from Djibinar (Fodé Djiba) and Bona (Marcelin Diedhiou) were at the regional office. The regional director, Alioune Diallo, was not there. Mamadou Badiane, named by the director as the project’s regional contact, was there. They had not been notified by ANCAR/Dakar about our planned visit. We discussed the activities that were undertaken during the mango season. Most importantly we learned that no money had been sent to ANCAR/Kolda to implement activities. Torula traps were being included in the survey, but samples were not being saved, so there could be no validation if species identifications. The traps were still in orchards instead of being moved outside orchards according to the new protocol. As in Ziguinchor, agents reported a few times that the lids to the bucket traps used for monitoring had blown off in storms, flooding the traps. We need to add some clips to hold the lids in place during wind events. Also, the bucket is hung by a wire loop which must be untwisted to remove the trap for emptying. A hook-shaped loop of wire or a closeable hook attached between the loop and the bucket was added to the design this year in order to make removal easy for the agents, but it hadn’t been implemented. The drain holes drilled at the bottom of the bucket, which were drilled to the size that I recommended, need to be enlarged because they are too small to drain well. The entry holes need to be elevated to just under the rim of the lid to take advantage of the eave formed by the bucket rim. Only male annihilation (Malatrap) was tried because the mangoes had been harvested by the time the Success Appat arrived. The agents had not received any of the quarterly reports that were being sent electronically. We collected their e-mail addresses to cross-check with the mailing address list. The discussion turned to level of effort versus the agents’ available time. They suggested that we hire local helpers in the villages who could be paid by the project to carry out the field work that the ANCAR agents would supervise.

Regarding the efficacy trials, the field agents in Djibinar had only received the Malatrap and the Success Appat the prior week. Badiane explained that, because the regional office had received no money from the project, he had to wait to take advantage of other project’s trips to get the product to the sites where the agents are.

In the evening I met Djibril Badiane, ISRA researcher in Kolda. We discussed with Kemo Badji the options we have enrolling him in a regional PhD program. We then met with Demba Keita of APRAN to discuss the nature of future cooperation in APRAN’s region of intervention. He was attending a workshop for a new regional Canadian project and showed the participants the draft of our project’s fruit fly video.

Saturday September 4 – Return to Dakar

Sunday September 5 – Reports and correspondence

Monday September 6 – The field trip to Thies had been postponed because the directrice of DPV wanted Kemo to come to the office. I worked on reports and met Theodore Nouhoheflin, who arrived Sunday night from Benin to collect trade data in Senegal for a student of George Norton as part of the IPM CRSP AFSI. In the afternoon I went to the University of Dakar with Kemo Badji to discuss PhD program options with Professor Leonard Akpo.

Tuesday September 7 – I arrived at DPV at 8am. We met colleague's at ENSA and ANCAR/Thies before heading to the field. I met briefly with the regional accountant Mbaye Diouf, who had participated in the June IPM CRSP financial management training in Bamako. I asked if any of the budget had been distributed to ANCAR/Thies. I saw the transfer notice showing that headquarters had only transferred the money for this season's work on September 2, well after most of the mangoes had been harvested this year.

On the field trip was Kemo Badji, Elhadji Dieng, Assa Balayara, Bineta Mbengue Dieye, Mour Gueye, Richard Diemé (student at UCAD doing an internship with DPV), and Mour Gueye, Technical Directeur of ANCAR. ENSA graduate student and ANCAR/Thies agent Bineta Mbengue Dieye gave a presentation on her work monitoring the fruit fly populations at the retail area. We then went to Pout to see some of her monitoring sites and the long-term population monitoring sites of ANCAR agent Issa Diop, who joined us on road. Torula traps were set out for Bineta's survey, but the samples were not being saved for Assa Balayara to analyse reproductive state of *B. invadens* females, nor permitting validation of their identification by DPV. The ANCAR monitoring site was only being monitored with pheromone traps, not torula traps. Trap numbering was not according to protocol. The meteorological station's anemometer was not turning, it had evidently been displaced from the pivot. It was also not oriented to true north as I had said needed to be done for all the stations during my December 2009 trip.

In Diass we headed to a field where a treatment block had been set up. There had been only male annihilation and only three traps per hectare. The agent had not received the efficacy protocol. It was raining, so we did not bother to go into the field. The trucks got stuck for about an hour and a half while trying to return to Diass.

Wednesday September 8 – The DPV truck required a fanbelt tensioner pulley. By the time the team arrived in Thieas from DPV it was raining steadily and we had to cancel the field trip to Niayes to see DPV's large-scale treatment blocks and Elhadji Dieng's mango bagging experiments. We had a meeting with Aminata Sow Kane, Directrice of ANCAR/Thies. Mour Gueye of ANCAR headquarters also attended. Kemo presented the data from the treatment blocks because the experimentation was done within Directrice Kane's administrative zone. Kemo Bajdi and Elhadji Dieng participated from DPV. We discussed the various problems that faced the trials that were undertaken by ANCAR, focusing particular discussion on the trouble that ANCAR headquarters has had invoicing

and sending advance money to the regions. Discussion was also directed at the level of effort that ANCAR agents can invest in carrying out field trials of the same quality as what DPV implemented. Bineta Dieye, the ANCAR student working on the DEA at ENSA, later joined the meeting. After the ANCAR meeting we went to ENSA to meet Marie Dieng, the project IT/database person, and Assa Balayara. I reviewed with Assa the most important behavioral experiments with female fruit flies that should be done while mangoes are still available in the market. With Marie I discussed the steps needed for completing the database for characterizing orchards. Kemo and I also presented the problems that we found in the field with respect to the long-term monitoring system that feeds information into the fruit fly population database she manages. Marie accepted the idea that she assume the responsibility for preparing the ENSA invoices because money is not moving. In fact, she had no new salary paid since the last invoice provided payment for her back salary. Director Ahmet Tidaian Diallo was not present, so I could not visit him.

Thursday September 9 – I worked on reports and correspondence in Thies. In the evening I was visited by Ousmane Ndiaye, who had come from Ziguinchor for his visa medical exam and background check. I took the original documents from him to deliver to USAID. An ISRA chauffeur heading to St. Louis picked up the English language DVDs that I picked up from Djibril Badiane when I was in Casamance to deliver them to Omar Fall who works on the AFSI food security project.

Friday September 10 – Baba Fall, the videographer, came to my hotel in the morning to deliver the final version of the video. Kemo and I reviewed the video four or five times and found some small issues pertaining to credits that needed further revision. I returned to Dakar, stopping en route to celebrate the end of Ramadan – Korité (Eid al Fitr).

Saturday September 11 – Report writing, project correspondence, telephone calls with home office and faculty members.

Sunday September 12 – 0140h United FL9817 to Washington DC. United FL5902 to Roanoke, Virginia.

Abbreviations:

AFSI. African Food Security Initiative. (IPM CRSP associate award)

ANCAR. *Agence Nationale de Conseil Agricole et Rural*. Senegal

DPV. *Direction de la Protection Végétaux*, Senegal.

ENSA. *Ecole Nationale Supérieure d'Agriculture*. University of Thies, Senegal

ISRA. *Institut Sénégalais des Recherches Agricoles*. Dakar, Senegal

OIRED. Office of International Research, Education, and Development. Virginia Tech

SAGIC. Senegal Accelerated Growth and Increased Competitiveness project

UCAD. *Université Cheikh Anta Diop* de Dakar. Senegal

USAID. United States Agency for International Development

VT. Virginia Tech. Blacksburg, Virginia USA

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Sihounké	Diatta	ANCAR/Ziguinchor
Fodé	Diba	ANCAR/Kolda
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Marie	Dieng	ENSA
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Mamadou	Dione	ANCAR/Ziguinchor
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Saliou	Djiba	ISRA/Djibelor
Mour	Gueye	ANCAR
Abraham	Kabou	ANCAR/Oussouye
Aminata Sow	Kane	ANCAR/Thies
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Bouna	Kounta	ANCAR/Ziguinchor
Famara	Massaly	Peace Corps/Senegal Associate Director for Agriculture
Demba Farba	Mbaye	ISRA
Simon	Ndene	ANCAR
Djalaliddine	Onfi	U. Ziguinchor (student)
Baba	Sene	videographer
Susan	Telingator	USAID/Senegal