

Trip Report  
Senegal

Bean/Cowpea CRSP

May 11 – 26, 2004

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Report of a Trip to Senegal, May 11 – 26, 2004  
By Joan Fulton

## **Introduction**

To further the goals of the Bean/Cowpea Collaborative Research Support (CRSP) Program, Joan Fulton traveled to Senegal in the period from May 11 – 26, 2004. The objectives were:

1. To gather information from processors of the challenges associated with producing and distributing processed cowpea products in Senegal.
2. To gather information from retailers about the availability of and consumer preferences for processed cowpea products in Senegal.
3. To gather information from consumers about their preferences for processed cowpea products in Senegal.
4. To work with Mbene Faye, Institut Sénégalais de Recherches Agricoles (ISRA) agricultural economist, on the analysis of the potential for coastal shipping of cowpea.
5. To work with Faye on the analysis of the factors affecting the demand for cowpea in Senegal, as part of Faye's Ph.D. dissertation.

## **Logistics**

Fulton left West Lafayette about 13:00 on Tuesday, May 11, 2004. Cancelled flights, due to thunderstorms, resulted in her being unable to depart from Indianapolis airport on May 11, so she returned to West Lafayette. She left West Lafayette on Wednesday, May 12 about 10:30. She arrived in Dakar, Senegal about 20:00 on Thursday, May 13, traveling via Indianapolis, Newark, and Paris. She met Kathryn Boys (Purdue agricultural economics Ph.D. student) in the airport in Paris. They were met at the Dakar airport by Mbene Faye and Ibrahim Ndaiye (agricultural economist and technician from ISRA). Fulton lodged at the Hotel Nina in Dakar for six nights. On May 19 Fulton, Boys, Faye, and Ndaiye drove to Saint Louis, stopping at the Sagatta market. They stayed for two nights in Saint Louis, lodging at the Hôtel La Résidence. On May 21 they drove to Bambey, stopping at the Mpal market. Fulton and Boys stayed for three nights at the ISRA guest house in Bambey. On May 23 they drove to Dakar where they lodged at the Hotel Nina for two nights. Fulton left Dakar around 23:00 on May 25 and returned to West Lafayette around 16:00 on May 26, traveling via Paris, Newark and Indianapolis.

**May 14, 2004**

Fulton, Faye, and Boys met with the following people at ISRA in Dakar:

Dr. Taib Diouf, Scientific Director, ISRA

Dr Cheikh Oumar, Economist, ISRA

Other members of the socio-economic group from ISRA

The importance of cowpea in Senegal and the excellent long standing cooperation between ISRA and the Bean/Cowpea CRSP, and particularly Purdue University, was highlighted. In particular we noted the value of sharing methodologies and adapting them for future research.

Faye, Boys and Fulton stopped at Superette le Caddté and purchased a package of cowpea flour (farine de niébé) for 400 CFA. The cowpea flour was found in the section of the store with other flour and milled products, including ground millet, dried lentils (several varieties), and ground maize. These items were found below waist and knee level, with a single row of the cowpea flour and two rows of each of the other flours and ground products. In other words, there was about half as much product for cowpea flour as for the other products. The product was about half way down the aisle, in a central part of the store. There were about 10 – 400 gram bags in inventory on the store shelf.

Faye, Boys and Fulton met with Dr. Ababacar Ndoye, Directeur de la Recherche et du Développement at the Institut de Technologie Alimentaire (ITA). They talked about the excellent collaboration between ISRA, ITA and the Bean Cowpea/CRSP project. Ndoye described previous projects involving cowpea and in particular a project with USAID that explored the potential for canned cowpeas. A request was made for a copy of the report from that project, and was obtained during a subsequent visit on May 17. Everyone agreed that collaboration on the research concerning processed cowpea products is important to make the best use of resources. An appointment was set up to meet with Madame Doumouya on Monday, May 17 at 10:00. Doumbouya works on processed products and with women cooperatives groups.

Faye, Boys and Fulton visited a supermarché in Dakar. They did not find any processed cowpea products, or any cowpea grains.

Faye, Boys and Fulton visited Score (supermarket) in downtown Dakar and found packages of cowpea flour (same brand name and size and type of packaging as at Superette le Caddté). The price was 500 CFA for the same package as at Superette le Caddté. The location and stock was very similar to the Superette le Caddté. There were no cowpea grain products available for sale in the Score store. They looked to see if any of the infant formula had cowpea as an ingredient and none did. They found no other cowpea products. When an employee was asked about cowpea he said that consumers could go to the market and get them cheaper. It was interesting to note that several varieties of McCain frozen French fries were prominently displayed in the Score store. These are the type where the consumer pours them out of the bag, pops them into the oven for 10-15 minutes and the French fries are ready to eat. The prevalence of the frozen French fries raised the question of whether consumers might respond favorably to a frozen akara

product that they could take home, pour out of the bag onto a pan and into the oven for 10 – 15 minutes.

At lunch Faye, Boys and Fulton discussed the uses of cowpea flour as well as how long it had been available in the stores in Senegal. Faye noted that the only use that she knew of for the flour was akara. Faye noted that the cowpea flour has been available for 3 years, since 2001.

### **May 15, 2004**

Faye, Boys, Ndaiye and Fulton visited 5 markets in Dakar collecting data on amount and type of processed products carried in each of the markets. Interesting points noted are:

- In the Score stores you find the processed frozen foods, such as frozen French fries, that just have to be heated in the oven and are ready to serve in about 15 minutes. These items are not found elsewhere.
- The most prevalent type of frozen processed food was fried potatoes – and in various shapes/forms (e.g. long fries, rounds, unique shapes for children)
- Cowpea flour is available in some of the superettes. We only found cowpea flour in one of the Score stores (the one at the center of Dakar). There is only the one brand of cowpea flour, La Vivrière and only the one package size (400 gr). The price varies from 400 CFA to 500 CFA.
- When the shopowners were asked about the cowpea flour they indicated that they did not sell very much of the flour. They mostly sold it to women from other African countries (not Senegalese women). They experienced storage damage, from bugs, if they kept the cowpea flour around for too long.

Faye, Boys, Ndaiye and Fulton stopped to try and meet with the women in charge of cowpea flour from La Vivrière, the company that is producing the cowpea flour. She was not there, and her colleagues indicated she was in Germany. Faye and Ndaiye will try again to meet with her at a later date.

Boys and Fulton returned to the Hotel Nina and began the development of questions for a consumer survey to identify changing consumption patterns and use of processed products, especially cowpeas.

### **May 16, 2004**

Faye, Boys, Ndaiye and Fulton visited 9 markets and looked for vendors selling cowpea flour. They found one vendor in Marché Tilene selling cowpea flour. While he did not have any cowpea flour at the time, he indicated that he normally had it. He reported that he sold 2-3 packages per day. He also noted that storage was a problem if he kept the cowpea flour around for very long, so he just bought it as he was able to sell it. Storage problems arose from bugs and mice. He sold the same 400 gr. packages that were for sale at the other stores. His price was 310 CFA per package.

At the Gueule Tapee market Faye and Fulton interviewed an akara vendor. She indicated that she had tried using the cowpea flour to make akara, but only once. She had obtained the cowpea flour from the vendor in the Marché Tilene. She did not continue using the cowpea flour because the akara she made did not turn out good. She would be willing to use the cowpea flour, and was not turned off by the price. She noted the significant time saved from using the flour. However, quality of akara was key for her business so she utilizes family labor (e.g. daughter-in-law) and continues to follow the traditional production practice. She is a middle aged vendor, most likely in her 40s. This woman also makes Ndambé, which is cowpeas in a tomato sauce and served on bread as a sandwich for a snack or lunch.

Faye, Boys, Ndaiye and Fulton then spent time reviewing the data that had already been collected and determined a format for a table to include in the reports. They then discussed how additional data collection could unfold. It was identified that it is important to interview additional akara vendors, since they are the major users of cowpea (and potentially cowpea flour).

After lunch Faye, Boys, Ndaiye and Fulton visited several markets to find akara vendors. They found many vendors selling beignets, but only one vendor selling akara. One of the beignet vendors indicated that her mother used to sell akara but has not sold it for about 15 years. Responses from the vendors, when asked about akara, was that it was difficult and time consuming to make akara and that consumers have a preference for the beignets, which are sweeter.

One vendor who sold akara was found in the Grand Dakar market and very willing to meet with us. She was a young vendor, early 20s in age. She showed us the various steps she goes through when making akara and made some akara for us. We asked her about the flour and she had not heard of it. We brought out the flour and she agreed to try cooking with it. She mixed up some batter and cooked it and then we compared the traditional akara with the akara made from the cowpea flour. We found that

- The akara made the traditional way had a more consistent texture (with air holes) than the akara made from the cowpea flour
- The akara made from the cowpea flour was heavier and had large air holes
- The akara made the traditional way soaks up more oil (due to the more porous texture)
- The vendor and the other family members that were around did not like the akara made from the cowpea flour. An older woman, who was a family member, suggested that if the flour and water were left to sit (so the flour could soak up the water) then the product might be better. The vendor agreed to keep the package of cowpea flour and try some later and see if the product was any better.

## **May 17, 2004**

Faye, Boys, Ndaiye and Fulton met at ITA with:

Dr. Ndoye, Director

Madame N'dèye T.T.SEYE Doumouya, Researcher, Food Science

Dr. Ousman Gaye, Researcher, Food Science

Mr. Ibrahim Mbaye, Researcher, Food Science

The representatives from ITA provided an overview of the research on processed cowpea that they had conducted over time and provided us with copies of their reports. Cowpea storage technologies for rural areas, USAID project, roasted cowpea, cowpea flour in cakes bread were other areas that the ITA researchers had worked on and they reported on their work.

Faye, Boys, Ndaiye and Fulton went to the Castor Marché. Ndaiye and Boys collected cowpea grain samples while Faye and Fulton surveyed the market for vendors selling cowpea flour. They were able to interview a commercial agent from one of the processors in Thiès. The agent indicated that his company used to process and sell cowpea flour. However, problems were encountered with: storage, filling of the packages, and low demand. Given these problems the company decided to eliminate the cowpea flour from their product line. It was interesting to note that this agent suggested that if there had been promotion of cowpea flour, like the promotion of broken maize, that the product would have received greater consumer acceptance and higher demand.

Faye, Boys, Ndaiye and Fulton developed the consumer survey. A pretest of the survey was conducted to determine the length of time necessary to complete the survey and adjustments were made to the survey questions.

## **May 18, 2004**

The consumer survey was completed and copies were made. Ndaiye went to the market and began conducting interviews with consumers. Additional packages of cowpea flour were purchased from the Score store in the center of Dakar. This store was selected because the researchers were close to that location. It was interesting to note that the price had increased to 520 CFA per package (when the price had been 500 CFA per package the week before). While there were only 3 packages of cowpea flour on the shelf, when asked the employee brought additional supply from the back and the researchers were able to buy 10 packages.

Faye, Boys, Ndaiye and Fulton returned to the akara vendors to learn of their reactions to making akara from cowpea flour. The akara vendor at the Gueule Tapée market had made akara with the cowpea flour during the day. She had added baking powder to the batter and reported that customers could not tell the difference between the akara from the cowpea flour and the akara made the traditional way. She reported that she preferred the akara made from the cowpea flour due to the considerable time saving associated with preparing the akara. The color, texture, and taste were reported to be the same as the akara made the traditional way. The vendor indicated that she could not tell the difference. Another bag of cowpea flour was left with this vendor.

She was asked to use the whole bag of flour in making akara and to determine how many akara she could make from one package of flour, as the first step in determining a budget assessment.

The akara vendor in Grand Dakar was visited. She had made akara from a whole bag of cowpea flour. From a bag of cowpea flour she reported receiving revenue of 785 CFA. The cost was 790 CFA (flour 400 CFA, Oil 300 CFA, baking powder 15 CFA, Charcoal 75 CFA). There was no labor charge included in this calculation. These results suggest that the price of cowpea flour may be a barrier to its use in making akara.

Faye, Boys and Fulton met Tahirou Abdoulaye (Visiting scientist ICRISAT-SC Niamey), Ouendeba (consultant), and John Sanders (agricultural economist, Purdue University) for dinner. They were in Dakar for meetings related to INTSORMIL. The similarities between the development of processed millet and processed cowpea products were discussed. Fulton and Abdoulaye discussed the methodology related to the Bean/Cowpea CRSP Women In Development project with kosai<sup>1</sup> vendors in Niger.

### **May 19, 2004**

Faye, Boys, Ndaiye and Fulton traveled from Dakar to Saint Louis. They stopped at the Sagatta market where Ndaiye collected grain samples, while Faye, Boys and Fulton evaluated the nature of the market and the product selection in the market. There were a wide variety of products, but no processed cowpea products or other processed grains.

Fulton and Faye visited ISRA and met with Amadou Abdoulaye Fall (agricultural economist, ISRA) and Alioune Fall (Director, ISRA-Saint Louis) where they discussed the important research connections between ISRA and the Bean/Cowpea CRSP and, in particular Purdue University.

### **May 20, 2004**

Faye, Boys, Ndaiye and Fulton visited 7 restaurants and 6 markets in Saint Louis. The restaurant owners reported that they were very willing to make dishes with cowpea if given notice, but these dishes do not appear on the regular menus. No cowpea flour was found in any of the shops. In the Alimentation Générale stores there were many other processed grains (millet, couscous, broken maize) but no cowpea flour. Ndaiye conducted additional consumer interviews in Saint Louis markets. Telephone contact was made by Faye with one of the processors whose products we had seen in many of the markets and a meeting was set up. The interview was very productive. This processing business had been operating for about 2 years. They produce a full line of products from local cereals. They had not tried the cowpea flour. They followed a practice of “think of a new product and try it.” The constraints that they indicated having are the need for more automated packaging equipment. Their marketing is primarily “word of mouth” and receiving phone calls from the phone number on their package.

Faye, Boys, Ndaiye and Fulton drove to Gandong to meet with another processor, but they were meeting with the World Bank and an appointment was made to meet the next morning.

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<sup>1</sup> Akara and kosai are the same products with different names in different regions of West Africa.



## **May 21, 2004**

Faye, Boys, Ndaiye and Fulton drove to Gandong and met with the food processor. This company produces a full line of processed cereal and grain products, but has not tried cowpea flour. The constraints that they noted were drying, since they depend on the sun to dry the product and it is difficult during the rainy season, and transportation. Transportation, to get the product to the vendors, is expensive. They sold mixed packages for vendors so that the vendors could have a variety of products to sell to consumers and not have to deal with storage problems.

Faye, Boys, Ndaiye and Fulton drove to Mpal where Ndaiye and Boys collected cowpea grain samples. Fulton and Faye surveyed the cowpea market and noted the ingenuity of the traders who were repackaging the bissap (red leaves).

Faye, Boys, Ndaiye and Fulton drove to Kandala and met with Khadi Leyè and other women from the union. The important collaboration between the union and ISRA and the Bean/Cowpea CRSP over the years was discussed. A tour of their facilities, along with discussion of their product line was conducted. Constraints that they encounter are: packaging (especially sealing); transportation; kitchen supplies (bowls, steamers); steady markets; quality control (especially the juices that are produced in the villages). Their product selection is supply driven.

Faye, Boys, Ndaiye and Fulton continued to Bambey where Fulton and Boys lodged at the ISRA guest house.

## **May 22, 2004**

Faye, Boys, Ndaiye and Fulton then drove to Thiès and visited 4 markets. Faye, Boys, Ndaiye and Fulton met with 2 processors. They are producing the full line of products. The one processor will produce cowpea flour on special request. The other processor used to produce cowpea flour but stopped due to packaging problems and low demand. Ndaiye conducted additional interviews to collect data on customer preferences. Faye and Fulton interviewed a retired akara vendor. This woman had been in business for about 35 years in a village in central Senegal. Her product line included akara and beignets. She made and sold these products every day. She sold about 200 akara every day and 300 or more Beignets every day. She would use 50 kg. of wheat flour every 3 days. Every day she used 3 kg. of cowpea. It took 1 litre of oil per kg. of cowpea to cook the akara. She sold akara and beignets in the morning and only beignets in the evening. She sold the product from the front of her house. In addition, her daughter, starting at the age of 4, helped her by traveling through the village to sell the akara and beignets. Her daughter was very entrepreneurial and an excellent salesperson. The women felt that the future was better for her daughter in business and at first did not see the value of formal education. However, the father decided that the daughter needed to attend school with the other children so the daughter helped her mother with the business before and after school. Customer service was a key success factor for this akara vendor and she had quickly realized the importance of “balance”. She was known throughout the village as the best akara vendor – but often received comments that her daughter was rude in response to situations where customers had demanded that credit be given for akara purchases. Her daughter had been strict in enforcing her own policy of only extending credit to customers for a maximum of one day. The hardest

part of being an akara vendor is mixing the akara batter with the mortar and pestle. When she started selling akara the price was 5 akara for 5 CFA. One day's worth of sales would return 200 CFA per kg. of cowpea from the akara and her costs would be 110 CFA (costs: 15 CFA for cowpea; 45 CFA for liter of oil; onion sauce: 50 CFA).

### **May 23, 2004**

Faye, Boys, Ndaiye and Fulton entered data, generated the maps and began writing reports. These results will be reported in an upcoming CRSP report. Joan Fulton met with Ndiaga Cisse (Co-chair West Africa Bean Cowpea CRSP and ISRA scientist) and discussed the activities of the Bean/Cowpea CRSP. Cisse reported on the conference phone call meeting that Fulton had missed due to travel schedules being disrupted. They discussed plans for the Bean/Cowpea CRSP All Researchers Meeting being planned for 2005 in Dakar.

Faye and Fulton worked on Faye's Ph.D. dissertation. Fulton reviewed and provided comments on one of the chapters. The plan for the analysis of the data and completion of the dissertation was identified, including ways to make the best use of time while Faye is in South Africa in July and August 2004.

### **May 24, 2004**

Faye, Boys, and Fulton returned to Dakar. They contacted 16 restaurants to determine the use of cowpeas in dishes in Senegal. Most of the restaurants did not have cowpeas on their menus, but would prepare a cowpea dish if they had advance notice. They visited the akara vendor, from Gueule Tapée who was using the full package of cowpea flour. She reported that she had been able to make enough akara from one package of flour to earn a profit. She also reported that she would like to use the cowpea flour. However, she had tried to purchase the cowpea flour and was unable to obtain it from the merchant in Marché Tilene. It became evident that availability of cowpea flour is an important factor for akara vendors to consider adoption.

### **May 25, 2004**

Faye, Boys and Fulton spent the morning planning the protocol for the storage technology study that Boys would be working on for the 2<sup>nd</sup> two weeks. They identified the need to hire some enumerators to assist in the interviews and data collection in the villages. They agreed that Fulton would meet with Lowenberg-DeBoer when she returned to Purdue and then, after evaluating the plan, would have a phone conversation with Faye and Boys (on May 27). Faye, Boys and Fulton met with Dr Moussa Cissé and discussed cowpea trade and the programs to assist in local cereal processing. Faye and Fulton evaluated the progress to date on the coastal shipping study. Faye reported on the interviews that she had completed and noted that the next step was to meet with some shippers and obtain cost estimates that could be input for budgets. They also discussed alternative approaches to conducting statistical analysis comparing cowpea prices in Dakar with cowpea prices in other coastal markets (e.g. Lagos). Fulton agreed to work on that portion of the project.

## **Conclusions:**

Processed products associated with grains and cereals are becoming important for Senegalese consumers in urban areas. The following products were readily available in superettes throughout Dakar and Saint Louis: millet flour, maize flour, arraw, sankhal, thiakry, Senegalese cous-cous, and broken maize. The consistent availability of these products and the fact that inventory was obviously moving through these superettes suggests that consumers are buying these processed products that offer convenience and time saving.

The food service or restaurant, sector can also provide added value to food products and cowpea is no exception. The researchers found that with respect to cowpeas, very few restaurants had cowpea dishes as part of their regular menu offerings. However, most restaurant owners indicated that they would prepare cowpea dishes upon request, requiring a few hours to one day of notice.

Cowpea flour, or farine de niébé, was available in superettes in Dakar, but not elsewhere. Shopkeepers that carried cowpea flour reported that the product is often purchased by non-Senegalese, African women. There is currently one food processor, La Vivrière, which is consistently producing the product. Other processors reported that they would produce cowpea flour on request, or at certain times. Representatives from the food processing companies reported that ex-patriot communities in Italy and France are important potential market segments for cowpea flour. Currently they are selling the product to family members in Senegal who are then sending the product abroad.

There is potential market demand for cowpea flour from akara vendors. The researchers found that akara vendors and akara as a snack food were becoming “extinct” in Dakar. The reason for this is the labor intensity associated with preparing akara. In other words, the opportunity cost of time has increased and women are no longer prepared to invest the time that is necessary to prepare akara. If cowpea flour could provide an alternative such that akara vendors could make an akara product that was satisfying for consumers at a cost that allowed for an appropriate rate of return, there is market potential. It is also important to point out that most households do not prepare akara at home, but rather purchase it from street vendors when they want the product for family consumption, or for entertaining.

Further work is needed to determine the potential profitability of using cowpea flour in a typical akara business. Budgets will be included in the upcoming market report. The akara vendors will benefit significantly from recommendations concerning the best practices associated with using cowpea flour in making akara (e.g. soaking the flour and water or using baking powder, or both). Finally, the availability of cowpea flour is key. Akara vendors will need to be assured that they can buy the flour every day (or a few times a week) for their business to successfully use this product as an input.

Processed cowpea products could be more readily adopted if there was a promotion campaign related to this product. In particular, the researchers found that restaurant owners were willing to prepare cowpea dishes, but did not offer them as a regular part of the menu. If there was increased publicity about cowpeas, restaurant owners might start including cowpea dishes on

their menus. The researchers also heard that consumer behavior had been affected by the promotion campaign associated with broken maize. A campaign encouraging the use of cowpea flour could also have a positive influence on the demand for that product.

## Appendix 1:

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## AGENDA

| PERIOD                                       | ACTIVITIES AND LOCATION  |
|--|--|
| May 12 <sup>th</sup> Arrival                 | - Arrival at Dakar Airport: lodging at NINA Hotel  |
| May 13 <sup>th</sup>                         | - Meeting with ISRA staff<br>- Meeting with the Food Technology Institute staff<br>- Visit of some markets, shops and super markets... |
| May 14 <sup>th</sup> to May 18 <sup>th</sup> | - Questionnaire's review<br>- Data collection and interviews in <b>DAKAR</b>   |
| May 19 <sup>th</sup> to May 21 <sup>st</sup> | - Data collection and interviews in <b>Kandala and Saint Louis</b>   |
| May 22 <sup>nd</sup> to May 23 <sup>rd</sup> | - Data collection and interviews in <b>THIES</b>   |
| May 24 <sup>th</sup> to May 25 <sup>th</sup> | - Typing and data review<br>- Meeting with ISRA staff<br>- Joan leaving  |
| May 26 <sup>th</sup> to May 27 <sup>th</sup> | - Reviewing questionnaire on impact,<br>- Interviews in <b>Gatt Ngaraff 2</b>  |
| May 28 <sup>th</sup> to May 29 <sup>th</sup> | - Interviews in Kayre and Mbobene  |
| May 31 <sup>st</sup> to 5 <sup>th</sup> June | - Interviews in Fass Thiam, Ndiompi, Ndatt Fall, Santhiou Diaraff, Niomre  |
| June 6 <sup>th</sup> to June 8 <sup>th</sup> | - Typing and data review   |
| June 9 <sup>th</sup>                         | - Interviews with scientists working on cowpea storage at CNRA   |
| June 10 <sup>th</sup>                        | - Meeting with World Vision staff<br>- Meeting with ISRA staff   |
| June 11 <sup>th</sup>                        | - Kathryn leaving  |