Expanding Pulse Supply and Demand in Africa and Latin America: Identifying Constraints and New Strategies

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Abstract of Research Achievements and Impacts

Angola. MS student Chaves’ visits to Luanda’s market are pending his field research in 2011. Chaves’ U. Vicosa advisor recommended more time for studies before he develops a thesis proposal. World Vision will provide price data for beans in the Planalto. A national parastatal marketing chain has been identified as a buyer of local beans with expansion potential. Two UAN students, who conducted surveys in 2 zones of Huambo Province to better understand smallholder production/marketing systems, completed their thesis—based on interviews with traders/farmers. The baseline document from the small holder survey with World Vision ProRenda project was finalized and results were presented to stakeholders & USAID. About 60% of households produce beans—almost none cultivate cowpeas. Beans are a major income source for farmers in the ProRenda target zones. Donovan conducted a class on agricultural policies, focusing on price policy for 35 UAN undergraduates/faculty.

Mozambique. Traders visited during the Windshield market information survey indicated higher use of cell phones, less waiting time for transit & demand for 24-hour bank machines. A preliminary bean/cowpea report was drafted, but will be revised to incorporate maps based on recent GIS training/price analysis. CRSP researchers were unable to bring together the stakeholders Task Force, but this is a key objective for 2011. The SABREN & PSU projects have been contacted about collaborating with MSU. The MS student’s U Pretoria advisors requested delaying developing her research proposal until she completes research methods/econometrics courses. The 2002-2008 TIA (household) data are available. Combined with information from rapid appraisals & price data collected through the market information system (SIMA), the student will have access to an excellent data set. SIMA data continue to be collected weekly for beans & cowpeas.

Honduras. The project was refocused to produce third party certified fairtrade (FT) beans. Whole Foods Market prefers FT certification via IMO and agreed to buy 20 mt of beans for delivery in late 2011. Based on the results of ECOFRIJO trials (organic vs. conventional beans), CIALs from Yojoa Lake implemented organic fertilizer production. While the trial results varied, organic practices are a good option—given increasing input costs & similar yields. Organic fertilizer was produced using compost and/or bokashi techniques. Practices to control
diseases/insects are being used by these farmers. Previously, 2 farmer groups expressed interest in organic bean production. Both groups participated in training activities & the ECOFRIJOL trial, but during the current year we continued to interact only with the Yojoa Lake CIALs. Data were collected to estimate the supply-chain related costs for marketing beans. We determined that the farmer association is able to process the beans and a broker has agreed to provide export-related services.

Capacity Building included MS training in South Africa and MS training in Brazil. Short term training was conducted in and in Mozambique.

**Project Problem Statement and Justification**

Markets are critical to farmer adoption of new technologies and management practices, as they offer farmers an opportunity to specialize and take advantage of comparative advantage opportunities to capture gains from trade. Market-oriented pulse production depends on many factors in addition to technology, including the level of pulse prices and price risk, quantity premia/discounts, and the cost of bringing products to market. These factors are influenced by the level of market infrastructure and public and private institutions, including enforceable contracts (to reduce risk), formal grading systems, the availability of price information, the ability of farmers to reduce transaction costs via membership in an association, and the physical proximity of markets. Pulse markets in Angola, Mozambique, and Honduras present a continuum in terms of the level of market infrastructure. Angola is characterized as having minimal price information, low yields/production, unpredictable market channels, and poor quality although improving infrastructure. Mozambique is characterized by a relatively effective market information system, low yields/production, and some farmer organizations, but minimal production for markets (market participation) due to a lack of information on quantity/demand. In contrast, Honduras is characterized by an effective market information system, strong farmer organizations, widespread adoption of improved bean varieties, market-oriented production, and a potential to produce for specialty/niche markets. The proposed action research will help to better understand how different levels of market development affect incentives for technology adoption—a ladder of learning. A key priority of the research is to expand market opportunities and accelerate the transformation from semi-subsistence to commercial farming.

Minimal research has been conducted to identify constraints and opportunities to expanding market participation in the three countries, which is the focus of this project.

**Angola.** Improving smallholder productivity and marketed surplus is a key element of the Government of Angola’s (GOA) poverty reduction strategy. Expanding bean/cowpea production is key to the strategy’s success, since they are the country’s most important legume crops (370,000 ha), are grown throughout the country, and have been identified by the government as high potential crops. Currently, imports are required to meet demand, as demand exceeds domestic production. Smallholders are in the process of shifting from subsistence to more market-oriented production and the GOA is making investments in developing markets. This project contributes to these efforts.

**Mozambique.** Beans/cowpeas, the most important legume crops after peanuts, have considerable production potential. The Ministry of Agriculture’s (MINAG) development strategy recognizes
the importance of strengthening value chains for market-led development. Bean/cowpea production flow into different markets, each with different consumer preferences, although consumer preferences of the different markets are not well documented. To date, little work had been done to improve the market performance and the sustainability of dry pulse value chains, which are the foci of this proposal.

Honduras. Common beans, the second most important food crop (95,000 ha) after maize, are an important source of cash income for smallholders. However, typically most smallholders sell their surpluses to traders at the farmgate and receive low prices. With the recent ratification of CAFTA, bean imports are expected to increase, thereby reducing bean prices and farmers’ incomes. Smallholders need new markets that will add value to their crop. This project focuses on developing a new market opportunity for smallholders--producing and exporting organic fair trade beans (small reds) to the US market.

**Planned Project Activities for April 1, 2009 - September 30, 2010**

**Objective 1:** Angola - This project component has 3 sub-objectives: sub-objective 1.1: summarize secondary data on bean/cowpea production and marketing, including the identification of gaps to guide future research; sub-objective 1.2: identify production areas, marketing channels, and marketing margins; and sub-objective 1.3: Identify constraints, opportunities, and potential pilot interventions to improve competitiveness

**Approaches and Methods:**

*Objective 1.1:* Summarize secondary data on bean/cowpea production and marketing, including the identification of gaps to guide future research. Visit key informants to identify information and data sources.

*Objective 1.2:* Identify production areas, marketing channels, and marketing margins/value chain diagnosis and capacity building. Interview key subsector participants (e.g., agricultural scientists, traders, processors, importers/exporters, NGOs) to develop a value chain diagnosis, plus information needed to improve performance and identify constraints to subsector growth.

*Objective 1.3:* Identify constraints, opportunities, and potential pilot interventions to improve competitiveness/Conduct smallholder survey.

Undertake a smallholder survey under the World Vision Smallholder Horticultural Value Chain Development project. The survey included information on farmer characteristics and practices, including marketing strategies, trade, and transport—thereby documenting linkages between farmers and markets.

**Results, Achievements and Outputs of Research:**

*Objective 1.1:* Summarize secondary data on bean/cowpea production and marketing, including the identification of gaps to guide future research. Market visits in Luanda for the major consumption market are pending Chavez’s field research in 2011. World Vision will provide price data for common beans in the Planalto, but there is no price dataset for cowpeas in the country. The national parastatal marketing chain Nosso Supermercado has been identified as a buyer of local beans with expansion potential.
**Objective 1.2:** Identify production areas, marketing channels, and marketing margins/value chain diagnosis and capacity building. Based on interviews with farmers and traders in two key markets areas of the Planalto, the two undergraduate students from UAN have successfully completed their theses. Robertinho Txocaine’s thesis was titled “Identificação de circuito de comercialização a Londuimbale” (Identification of marketing channels for Londuimbale) and Adolfo Catuti’s was “Identificação de circuito de comercialização a Bailundu” (Identification of marketing channels for Bailundo). Txocaine’s research identified constraints in both input provision and output marketing in Londuimbale, resulting in low profitability of beans for farmers. Catuti found that farmers could profit by transporting and selling their beans directly in the Huambo market, but market uncertainty and transport scarcity constrains farmer access to the Huambo market. Instead, the majority sell to traveling traders in the closest market. The students are currently working on draft articles from their thesis work.

The MS thesis proposal of Chaves has yet to be developed for his program at the University of Vicosa. His advisors recommended greater time be allowed for studies before developing the thesis. While not ideal, we respect his professors’ assessment in Brazil.

**Objective 1.3:** Identify constraints, opportunities, and potential pilot interventions to improve competitiveness-Conduct smallholder survey. The baseline document from the small holder survey with World Vision ProRenda project was finalized in early 2010 and the data are available for student research. The results were presented to various stakeholders, primarily World Vision staff members and UAN faculty member Kiala. Donovan talked about the diagnostics on farmer marketing, identifying potential problems, which were then discussed by participants, related to World Vision extension activities with farmers. The sales strategies used suggest dependence on itinerant farmers in the region as well as on local markets, with basically no information systems in place, a gap that World Vision is seeking to fill through extension agents.

About 60 percent of the households in the zones under study produce common beans, but almost no households cultivate cowpeas, according to the survey. Common beans are a major income source for farmers in the ProRenda target zones. Women farmers tend to get higher prices for the beans that they sell, resulting in higher total revenues, even though they produced an average of only 112 kilograms, selling 75% of production compared to 314 kilograms produced among males, and 86% is sold. The basic results of the survey were also discussed with USAID colleagues when Donovan was in Luanda with Kiala.

Two students at UAN conducted limited household surveys in two zones of Huambo Province, to understand smallholder production and marketing systems in depth, while gaining greater experience in field survey data collection. Their research results are briefly discussed above. The CRSP funded their field research through funds to UAN. As an additional training activity during July 2010 travel to Angola, Donovan conducted a class on agricultural policies, focusing on price policy for 35 undergraduates and faculty at UAN in Chianga.

**Objective 2:** Mozambique - This project component has 3 sub-objectives: Sub-objective 2.1: Analyze spatial and temporal patterns of bean/cowpea production and marketing, using national survey data (TIA), disaggregated by gender; Sub-objective 2.2: Map marketsheeds for bean/cowpea production areas, document market preferences and work with breeders to test
varieties with desirable market characteristics to improve competitiveness and spur adoption of improved bean/cowpea varieties; and Sub-objective 2.3: Capacity building with MS student undertaking econometric analysis of the determinants of market participation by producing households, including sex of household head as an explanatory variable.

**Approaches and Methods:**

*Objective 2.1:* Analyze spatial and temporal patterns of bean/cowpea production and marketing, using national survey data (TIA), disaggregated by gender. Spatial and temporal analysis of existing national agricultural survey databases will be carried out and the production and marketing data will be presented tables and in the form of maps using GIS. The tables for the descriptive analysis will be specified jointly by PI from MSU and IIAM/CESE with the participation of the staff from SIMA. The PI/IIAM will be responsible in carrying out the statistical analysis. The GIS mapping will be led by the PI from MSU with on the job training of CESE staff. Report write-up will be led by the PI from MSU with participation of PI from IIAM. Production of the policy brief will be under the responsibility of the PI from IIAM.

Institutional capacity building will take the form of on-job training of two staff from CESE and two from SIMA to gain skill in using statistical package STATA for descriptive analysis of survey data and in the use of GIS to present results in maps. The on-job training will be provided by MSU staff.

*Objective 2.2:* Map marketsheds for bean/cowpea production areas, document market preferences and work with breeders to test varieties with desirable market characteristics to improve competitiveness and spur adoption of improved bean/cowpea varieties. This objective will be met using the previously described multidisciplinary action research approach with the task force--including focus group discussions with smallholders and field observations in the main agro-ecologies, as well as a rapid appraisal of markets during the major marketing season. Focus group discussions will also solicit detailed information about bean/cowpea production and access to input and output markets. The rapid appraisal will focus on marketing channels and margins. Through focus group discussions with producers and traders, relevant constraints and opportunities will be identified; and potential pilot interventions will be identified and prioritized to improve competitiveness of beans and cowpeas in the principal production agro-ecologies. Existing marketing channels and marketing margins will be documented.

The focus group discussion will be facilitated by staff from IIAM/CESE with backstopping from PI from MSU. The rapid appraisal of markets will be led by staff from SIMA with backstopping by the PI from MSU.

Institutional capacity building will take the form of in-service training on focus group discussion methods and rapid appraisal and will benefit staff from CESE, SIMA and IIAM Zonal Research Centers.

*Objective 2.3:* Capacity building with MS student undertaking econometric analysis of the determinants of market participation by producing households, including sex of household head as an explanatory variable. During the first 18 months of the project, it was initially proposed that: a) a participant trainee (IIAM/CESE staff member) would be enrolled at MSU to pursue MS
degree program in Agricultural Economics at MSU. During his/her degree program s/he would acquire skills to undertake sophisticated econometric analysis using appropriate and relevant statistical packages; and b) the participant trainee would organize existing household survey data and, if needed, conduct fieldwork to gather additional data to perform the econometric analysis (MS thesis).

Results, Achievements and Outputs of Research:
Objective 2.1: Analyze spatial and temporal patterns of bean/cowpea production and marketing, using national survey data (TIA), disaggregated by gender.

Key market traders were visited again during the Windshield survey of the market information system in 2010, but no special bean/cowpea section was added to the survey this time. The Windshield survey indicated higher use of cell phones by all traders, less waiting time for transit, and continued demand for 24-hour bank machines, compared to the 2008 survey.

Use of the Ministry of Agriculture TIA data has enabled researchers to have a secondary database across the years of survey which is representative down to the Provincial level. A preliminary bean/cowpea report has been drafted, but will be revised by SABREN collaborator Alda Tomo, incorporating maps based on a recent GIS training and price analysis. The SIMA price data analysis is included in the report, as the data are already compiled for the various markets. Both TIA and SIMA datasets are public access datasets and are available to bean and cowpea researchers upon request.

Objective 2.2: Map marketsheds for bean/cowpea production areas, document market preferences and work with breeders to test varieties with desirable market characteristics to improve competitiveness and spur adoption of improved bean/cowpea varieties

As has been noted before, stakeholders in Mozambique are more likely to organize around concrete substance, such as varietal release, market information, and policy decisionmaking. In 2009/2010, the Pulse CRSP researchers were not able to bring the stakeholders together. This objective, including the Task Force implementation, remains a key one for all the parties involved, and with the increasing emphasis on value chains, in part due to Pulse CRSP Value Chain training in 2009, the Bean/Cowpea Task Force will be convened in early 2011. The SABREN and Penn State Pulse projects have both been contacted about collaborating to move this forward, with the MSU project.

Objective 2.3: Capacity building with MS student undertaking econometric analysis of the determinants of market participation by producing households, including sex of household head as an explanatory variable

The MS student was delayed in her studies at the University of Pretoria, and is only now developing the analytical skills necessary to conduct the econometric analysis. As is the case of Chaves in Brazil, her advisors have requested that the development of the research proposal await her completion of the research methods and econometrics courses in early 2011. Donovan met with one of her research advisors in September 2010 and confirmed that they will be incorporating Mozambican bean/cowpeas research into her plan. The 2002-2008 TIA (household) data are available and combined with information from rapid appraisals and the
price data collected through the market information system, SIMA, she will have an excellent set of data for her research. The SIMA data continue to be collected on a weekly basis in several relevant markets for common beans and cowpeas, and so the dataset evolves.

**Objective 3:** Honduras. This project component has 4 sub-objectives for this period. The sub-objectives in the current workplan are to: 3.1) put in place arrangements for exporting small-red beans from Honduras to US retailers, which are certified as organic and produced using sustainable production practices; 3.2) validate via field trails existing agronomic recommendations for growing organic small-red beans; 3.3) recruit interested smallholders and train the farmers to produce organic small-red beans that meet the grades and standards required by US retailers; 3.4) establish local market linkages required for small-scale small-red bean farmers to export organic/sustainably-produced beans to US markets.

Available evidence indicates that there is a demand for fair trade, organic small beans in the US. A recent study (DeVilla, Lara. 2008. “Assessing the Potential of Marketing air Trade Beans of Central American Origin in the United States”. Unpublished MS. Thesis, Department of Agricultural Economics, Michigan State University, East Lansing, MI) found that there was considerable interest among US retailers (who market organic/ethical food products) in purchasing/selling fair trade organic small-red beans. Regarding the capacity of Honduran bean-farmers to supply the demand of this market, at meetings in 2008 and 2009, leaders and farmer-members of the cooperative ARSAGRO expressed strong interest in growing small-red beans for export to the US, which met USDA organic and Rainforest Alliance standards for sustainably produced/fair trade beans. Currently, approximately 500 members of this cooperative plants over 1,000 hectares of beans in the Primera season. Supplying the initially projected export quantity of 20 mt of small-red beans would require the participation of only 20-30 farmers.
Approaches and Methods: **Objective 3.1:** Put in place arrangements for exporting beans from Honduras to US retailers. Contact US retailers to confirm their interest in purchasing beans from Honduras, possibly visiting selected forms to negotiate purchase agreements.

**Objective 3.2:** Validate via field trials organic bean production methods

Researchers at EAP will test methods that meet international standards for organic production via on-farm trials in collaboration with farmers. Organic fertilizers and amendments to enhance soil fertility and IPM practices will be included.

**Objective 3.3:** Recruit interested smallholders and train the farmers to produce organic beans. EAP researchers will recruit and train farmer groups (CIALs) and collaborating NGO interested in growing organic beans on organic bean production methods.

**Objective 3.4:** Establish local market linkages required for small-scale bean farmers to export organic/sustainably-produced beans to US markets. Researchers at EAP and MSU will contact market chain participants to finalize their roles in the project.

Results, Achievements and Outputs of Research: **Objective 3.1:** Put in place arrangements for exporting small-red beans from Honduras to US retailers, which are certified as organic and produced using sustainable production practices.

Due to the costs and difficulties in obtaining organic certification and insure that the farmers comply with organic standards, the project was refocused to produced third party certified fair trade beans.

Initially, the project planned to obtain fair trade certification through the FairTrade Labeling Organization (FLO), based in Germany. Several attempts were made to clarify several points, including if standards existed for beans and if FLO has established a fairtrade price for beans from Central America. Also, while FLO’s representative for Central America promised several time to visit the farmer association in Honduras, he was unable to meet with the farmers.

During discussions with the bulk commodity buyer at Whole Foods Market (our target US retail market), we learned that Whole Food Markets preferred that we seek fairtrade certification through the IMO, rather than FLO. Subsequently we contacted IMO to obtain information on their certification process. IMO provided clear information on how to obtain certification and provided an invoice detailing the costs of certification. Thus, we will now obtain fair trade certification through IMO.

The bulk commodity buyer at Whole Food Markets’ headquarters in Austin, TX has agreed to purchase 20 mt of fairtrade beans from the farmer association at the price that the farmers requested. The agreed to date of delivery is August 2011. Whole Food Market agreed to provide the farmers a formal purchase agreement by December 2010/January 2011. Typically, farmers plant their postrera bean crop in September and harvest it in December/January. However, due to extremely heavy rains, by the end of September farmers had not yet begun to plant their postrera crop. The heavy rains are expected to continue into October. Thus, farmers may not plant a postrera bean crop because if they plant late in the season, it is likely that the postrera rains will end before the crop matures—resulting in significant yield losses. Consequently, we are now
planning to produce the beans for export to Whole Food Markets during *primera* 2011 (May-August).

**Objective 3.2:** validate via field trials existing agronomic recommendations for growing organic small-red beans.

Based on the results of ECO Frijol field trials comparing organic vs. conventional bean production conducted in 2009-10, several Local Farmer Research Committee (CIAL, in Spanish) from the Yojoa Lake have implemented organic fertilizer production in their communities. The results of these trials varied depending on the level of fertilizers and pesticides used as conventional practices by farmers. In those sites were farmers use very low inputs, the organic practices gave better yield resulting on increase of bean productivity. In those sites were farmers use some inputs (chemical fertilizers and pesticides) yield was rather similar or less than conventional practices; however, organic practices are considered as a good alternative because of the increasing costs of fertilizers and pesticides and the similar productivity observed in organic plots. Farmers aware of the effect of the use of chemical products on the environment, and express a serious concern about it, and are in favor of the organic alternatives.

Most organic fertilizer are produced in the farm using the compost and/or bokashi techniques and including crop residues, chicken or cow manure, household garbage and other organic waste materials in their preparation. Organic fertilizers are manually applied in bands and incorporated before planting the seeds. Similar approaches are being used by CIAL in other regions where Zamorano conduct other collaborative bean research activities under the DGP-CRSP and other projects. Additional practices to control diseases and insects that affect the bean crop are also being used by these farmers. Some of these natural pesticides include the use of solutions prepared with extracts of hot pepper, onions, garlic, and the use of leaves or seeds extracts from neem, madreado (*Gliricidia sepium*), basil, mint, nettle, marigold and many other plants available and household materials such soap or detergent, ash and lime. The use of insect trap plants such as sunflower, eggplant and others, to facilitate the control of the bean pests that are attracted to these plants is also recommended.

Several farmers from CIAL and NGO technical personnel that assist them were trained under the project in practices for organic production of beans in previous years. This training has been offered in collaboration with the Organic Agriculture Unit from Zamorano. The project has facilitated the construction of modest shaded spaces for preparation of organic fertilizer and natural pesticides.

**Objective 3.3:** recruit interested smallholders and train the farmers to produce organic small-red beans that meet the grades and standards required by US retailers.

In previous years, two farmer groups were identified as potential candidates to get involved in the production and export of bean produced under project assistance. Meetings were held with the leaders and farmer members of ARSAGRO--one of the largest bean farmer association in Honduras, based in Danli, El Paraiso. The PIs outlined the goals of the project, including the requirements that the beans be grown in accordance with organic and sustainable production practices. The association members noted that Danli was a good place to grow beans and
expressed interest in participating in the project. In addition to the area being a good bean-growing environment, the association recently built a new processing/bagging facility. The association is a major player in domestic bean marketing (previously making large sales to Horti Fruti/Walmart-Honduras) and has previous made export sales to traders. We have also met with CIALs (farmer groups involved in participatory plant breeding activities) which have expressed a good level of interest in getting involved in organic bean production.

Two contrasting issues depending of the type of farmer group and its members were encountered last year with the farmer groups. Small and poor farmers from the hillsides of the Yojoa Lake and Yorito, with very small plots to cultivate or landless farmers that have to rent land season by season, are interested in using organic practices to improve bean productivity with some practices being implemented by some farmers. In contrast, farmers from the large organization ARSAGRO with better land and access to fertilizer and pesticides, were less interested in getting involved in organic farming of beans unless the process is facilitated by the project, which would require a larger investment of funds. Both groups have participated in training activities offered by the project and in conducting the organic bean ECOFRIJOL trial. During the current year, we have continued to interact only with the CIALs from the Yojoa Lake.

**Objective 3.4: Identification of Private Sector Agents**
Data were collected to estimate the supply-chain related costs associated with marketing the beans under several alternative arrangements (e.g., contracting various parties to clean the beans, transporting a container to the village and then to Puerto Cortez, fumigate the beans, clear the beans through Honduran and US customs, and ship the bean to a US port. We determined that the farmer association is able to process (clean, polish) the beans themselves and have contacted a broker who has agreed to provide export-related services (e.g., transporting a container to the village, transporting the packed container to Puerto Cortez, fumigating the shipment, completing US customs paperwork, making sea transport arrangements with an export/shipping company) and ship the beans directly to Whole Food Markets. Thus, based on analysis of these alternatives, it was decided to contract IMO to certify the beans as fairtrade, have the farmers clean/polish the beans themselves, contract a Honduran broker to provide local services (i.e., transport a container to the village and then to Puerto Cortez, clear the shipment through customs). The project will obtain permission from the Honduran government to export the beans and make arrangements with a broker for shipping the beans to a US port for delivery to Whole Food Markets.
Objective 4: Capacity Building

Angola: Short-term in-service training was conducted on data analysis using the household survey data. Chianga, Huambo, Angola, November 2009.

Mozambique: Follow up training on statistical analysis was conducted in Maputo, Mozambique, October 2009, and training of Simple GIS tools with survey data was conducted in Maputo, Mozambique, November 2009.

Degree Training:

Trainee #1
First and Other Given Names: Ana Lidia
Last Name: Gungulo
Citizenship: Mozambican
Gender: Female
Degree: M.S.
Discipline: Agricultural Economics
Host Country Institution to Benefit from Training: IIAM
Training Location: University of Pretoria, South Africa
Supervising CRSP PI: Donovan, Cynthia
Start Date: 2/09
Project Completion Date: Dec 2011
Training Status: Active
Type of CRSP Support (full, partial or indirect): Full (Category 1)

Trainee #2
First and Other Given Names: Estevao
Last Name: Chaves
Citizenship: Angolan
Gender: Male
Degree: M.S.
Discipline: Agricultural Economics
Host Country Institution to Benefit from Training: UAN
Training Location: University Federal Vicosa, Brazil
Supervising CRSP PI: Donovan, Cynthia
Start Date: 2009
Project Completion Date: June 2011
Training Status: Active
Type of CRSP Support (full, partial or indirect): Full (Category 1)
Short Term Training

Training #1
Type of Training: Basic survey analysis using STATA
Description of training activity: The training will refresh participants' skills in using the national household surveys for data analysis.
Status of this activity as of September 2010? Completed
When did the Short Term Training occur?
Location of Short Term Training: Maputo, Mozambique
Who benefited from this Short Term Training Activity?: Analysts of the National Agricultural Research Institute (IIAM) and the Directorate of Economics of the Ministry of Agriculture
Number of Beneficiaries: 10

Training #2
Type of Training: Basic GIS tools with survey data
Description of training activity: The training will introduce participants to basic mapping skills in using the national household surveys
Status of Short Term Training Activity as of September 2010? Completed
Location: Maputo, Mozambique
When did the Short Term Training Activity occur?: April 2010
Who benefitted from this Short Term Training activity?: Analysts of the National Agricultural Research Institute (IIAM) and the Directorate of Economics of the Ministry of Agriculture
Number of Beneficiaries: 7

Training #3
Type of Training: Statistical analysis
Description of Training Activity: The training will refresh participants' skills in analyzing recent household surveys.
Status of Short Term Training Activity as of September 2010?
Location of Short Term Training: Huambo, Angola
When did this Training Activity occur?:
Who benefitted from this activity?: Students and faculty members of the Agricultural Sciences Faculty at the University of Agostinho Neto
Number of Beneficiaries: 8
Training #4
Type of Training Activity: Short practical learning by doing training.
Description of training activity: Training on construction of solar facilities for seed drying using local materials.
Status of this activity as of Sept 30, 2010: completed
When did the activity occur?: 24-25 April, 2010
Location: Rural Development Program, Zacapa, Santa Bárbara, Honduras
Duration: 24 days
Who benefited from this activity?: Farmers and technicians collaborating in the production of organic beans.
Number of Beneficiaries: 8
Males: 7 females: 1

Training #5
Type of Training Activity: Short course offered by ECOPOL (Ecology and Population, A.C., México).
Description of training activity: Workshop on Sustainable agriculture on small scale: Bio-intensive cropping.
Status of this activity as of Sept 30, 2010: completed
When did the activity occur?: 13-15 September, 2010
Location: Zamorano, Honduras
Duration: 3 days
Who will benefit from this activity?: Farmers and technicians collaborating in the production of organic beans.
Number of Beneficiaries: 3
Males: 3 females: 0

Explanation for Changes
Angola: UAN emphasized the need to have the MS student begin his studies in Brazil and researchers worked hard to ensure those studies. The transaction costs were high, however, and took time away from the research for Donovan, Kiala and Bernsten. There have been continued problems ensuring the funding for the studies, due to coordination problems in South Africa. Combined with this is that the student’s program has been delayed and he has not been available to assist with field work. Short-term training for UAN students has been delayed.

Note that Donovan and Kiala worked to coordinate travel with the UCR and UPR teams in June. Unfortunately those teams canceled their trips due to visa problems, but Donovan was able to travel and worked with Kiala and two students as well as giving a seminar and discussing the research with USAID staff in Luanda and meeting with DSA staff and FAO on market analysis and information system development. The potential INCER investment in market information systems has not developed. The research component of this project has had delays, since Kiala had substantial administrative burdens, Chaves remains in Brazil for graduate studies, and time allocation for travel for Donovan is limited. Her presence in the region does lower the costs of her travel to Angola.
Mozambique: Getting the MS student in Pretoria and ensuring the availability of funds for the program needed a strong continued effort on the part of the researchers and the Pulse CRSP administration. For CESE, that MS training is high priority and well appreciated. The research component of her studies has been delayed. Donovan’s presence fulltime in Mozambique as a resident advisor with the MSU project at IIAM has beneficial, enabling the development of the draft working paper, which will be augmented by CESE researcher Alda Tomo, recently designated as a key bean/cowpea researcher in CESE, given the continued need for Gungulo to focus on her studies. The Value Chain training continues to have an impact, even though the research component has been delayed.

Honduras: Due to the heavy rains in Postrera 2010, the project has revised its target date for producing fairtrade beans for the US retailer (Whole Food Markets) until Primera (May—August) 2011—for delivery to Whole Food Markets in September 2011. Due to difficulties in getting organic certification, the project will only obtain third party fairtrade certification through IMO—which is acceptable to Whole Food Markets.

Networking and Linkages with Stakeholders
Angola: MSU and UAN have continued to collaborate with World Vision on their Gates Foundation Project on Horticultural Value Chains. The smallholder baseline survey and the data from that survey are some of the only farm level data available in Angola. Unfortunately, cowpeas were found among very few farmers in the zone, limiting the focus to common beans.

Donovan and Kiala have met with the Food Security Department (DSA) of the Ministry of Agriculture in Angola who are developing a market information system. The system is not functional and DSA has requested UAN and Pulse CRSP assistance in developing a training program for market information. Donovan will work with them in forthcoming trips to Angola. The working relationship between IIA (Angolan Research Institute) and UAN is strong and both are based in Huambo, facilitating the linkages. There are two other Pulse CRSP activities in Angola, both based with IIA. Continued discussions with the breeding program with University of Puerto Rico will be particularly important as work on the value chain proceeds.

Among the private sector agents, only Nosso Super (supermarket chain) has been contacted and further work with other stakeholders is needed, including Shoprite (supermarket chain), Jumbo, Angolan Chamber of Commerce, and UNAC (farmers association).

Mozambique: As noted earlier, this is the area of greatest weakness in the project and will be a focus, as collaboration between SABREN and Pulse CRSP Pennsylvania State University projects develops. The Joint meeting with IIAM breeders and other stakeholders is scheduled for early 2011. Collaboration with the Pulse CRSP Pennsylvania State University project will enable MSU project to complement the Penn State farmer level research, by evaluating the outputs markets in their research zones for the 2011 harvest period. SABREN is working simultaneously on seed systems diagnosis.

Leveraged Funds
Name of PI receiving leveraged funds: Cynthia Donovan
Description of leveraged Project: Angola household dataset and price data set completed with World Vision collaboration
Dollar Amount: $10,000 (estimate includes shared cost of data collection and analysis)
Funding Source: WV, Gates

Name of PI receiving leveraged funds: Cynthia Donovan
Description of leveraged Project: Mozambique data analysis funded jointly by USAID/MSU Food Security Project
Dollar Amount: at leaser $5,000 (estimate includes shared cost of data collection & analysis)
Funding Source: MSU’s Food Security Project (FSP)

Across the countries, we will be seeking funding to enable the sharing of experiences between the Central American research on advanced value chains and value chain development in Southern Africa.

**Angola**: The project will leverage Angolan government resources from the University of Agostinho Neto, Faculty of Agricultural Sciences. Production training and research at UAN is funded publicly, and the salaries and facilities of staff will provide a basis for the project operations. The Bean Program at IIA is also publicly funded and their participation has been sought in this training/research. MINADER has indicated strong interest in establishing market information services using public sector funding, and the project will be able to link with that work, as both the project and MINADER will use the rapid market appraisal methodology and results. World Vision development projects in the Planalto serve as a logical base for extension of project results as well as serving as the base for the household data collection effort.

**Mozambique**: Public sector funding contributes substantially to the development of this research and training program. That funding provides the salaries and facilities for the CESE staff members, including the HC-PI in Mozambique. In addition, MINAG funds funds the Bean Program of IIAM. The National Directorate of Economics and the provincial MINAG offices support both the national household surveys (TIA) and the market data collection of the Agricultural Market Information System (SIMA), through public sector funding.

**Honduras**: EAP, a private university supports the project by salary support for the HC-PI’s participation in the project.
Contribution of Project to Target USAID Performance Indicators
The attached form demonstrated the strong linkage between projective objectives and those of USAID, particularly the IEHA goals under pillars 1, 2 and 4.

It should be noted that Mozambique is a priority country for IEHA and the USAID mission strategy in Mozambique is closely aligned with IEHA, focusing on increased rural incomes through productivity growth and market access. While not an IEHA country, Angola’s mission strategy also includes many of the same features for smallholder agriculture market development.

The current proposal is aligned with IEHA goals and focuses on IEHA pillars 1, 2 and 4. Although Mozambique has not yet inaugurated its CAADP process the current proposal addresses CAADP pillars 2, 3 and 4. The research undertaken will also be relevant to the COMESA regional food staples trade program since Malawi, as well as other potential neighboring trade partners are COMESA member countries.

Contribution to Gender Equity Goal
Angola: The MS student is a male. The WV Prorenda Baseline survey and survey report will analyze gender components, and specifically targeted women in the sampling, interviewing 314 women (50% of sample). The seminar on price policy involved the set of undergraduate students at UAN (25 men and 10 women students). Note that the gender composition on the seminar depended strictly on the composition of the UAN student body, not on Pulse CRSP selection of students.

Mozambique: The MS trainee is a woman, Ana Lidia Gungulo. The Bean/cowpea report includes a gender component in the analysis.
Explanations Regarding “Semi-Annual Indicators of Progress (Benchmarks)” for period 5/1/10-9/30/10

Angola

Objective 2: MS Thesis proposal (delayed from previous period): The student continues to progress in his program, but his professors at the University of Vicosa have requested that he delay the thesis proposal until he completes more coursework.
Objective 3: Draft articles from each of the two theses from UAN: The quality of the theses were not satisfactory for writing articles as written. Kiala will be working with one student who has the promising document to create an article. This student wishes to continue his education and has an incentive to invest in the article.

Mozambique

Objective 1: Synthesis Paper on spatial and temporal analysis of production; a draft version has been prepared but is not complete and will need substantial addition work. The MS student at University of Pretoria has been focused on her studies and unable to contribute to this work, so collaboration with PABRA researcher Alda Tomo will enable this work to be wrapped up. Policy brief on production and marketing: Policy brief is an output from the paper indicated above, so will be completed after the paper.

Objective 2: Final working paper: Delayed due to lack of staff time for field work. Collaboration with the PSU project and PABRA will move this work forward in the next two quarters. Final policy brief: Delayed until working paper completed

Objective 3: MS Thesis proposal: The student continues to progress in his program, but her professors at the University of Pretoria have requested that she delay the thesis proposal until she completes more coursework.

Honduras

Objective 1: The bulk commodity buyer at Whole Food Markets’ headquarters in Austin, TX has agreed to purchase 20 mt of fairtrade beans from the farmer association at the price that the farmers requested. The agreed to date of delivery is August 2011. Whole Food Market agreed to provide the farmers a formal purchase agreement by December 2010/January 2011.

Objective 2:

Typically, farmers plant their posstrera bean crop in September and harvest it in December/January. However, due to extremely heavy rains, by the end of September farmers had not yet begun to plant their posstrera crop. The heavy rains are expected to continue for several weeks. Thus, farmers may not plant a posstrera bean crop because if they plant late in the season, it is likely that the posstrera rains will end before the crop matures—resulting in significant yield losses. Consequently, we are now planning to produce the beans for export to Whole Food Markets during primera 2011 (May-August).

Objective 4: We have determined that the farmer association is able to process (clean, polish) the beans themselves and have contacted a broker who has agreed to provide export-related services (e.g., transporting a container to the village, transporting the packed container to Puerto Cortez, fumigating the shipment, completing US customs paperwork, making sea transport arrangements with an export/shipping company) and ship the beans directly to Whole Food Markets. Thus, the project doesn’t require Rojitos’ processing/exporting services.
<table>
<thead>
<tr>
<th>Country</th>
<th>Program Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honduras</td>
<td>Train farmers on organic bean production methods</td>
</tr>
<tr>
<td></td>
<td>Train farmers on requirements for third-party certification</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of the PI reporting on benchmarks by Institution</th>
<th>R. Bernstein</th>
<th>D. Keita</th>
<th>C. Donovan</th>
<th>J.C. Rios</th>
<th>R. Seretan</th>
</tr>
</thead>
</table>

**Name of the U.S. Lead PI submitting this Report to the MO**

Richard H. Bernstein

**Signature**

Richard H. Bernstein

**Date**

10/8/2010

*Please provide an explanation for not achieving the benchmark indicators on a separate sheet.*
Dry Grain Pulses CRSP  
Research, Training and Outreach Workplans  
(October 1, 2009 – September 30, 2010)

PERFORMANCE INDICATORS  
for Foreign Assistance Framework and the Initiative to End Hunger in Africa (IEHA)

Project Title: Expanding Pulse Supply and Demand in Africa & Latin America:  
Identifying Constraints & New Strategies

Lead U.S. PI and University: Bernsten, Boughton, Donovan; Michigan State University  
Host Country(s): Angola, Mozambique, Honduras

<table>
<thead>
<tr>
<th>Output Indicators</th>
<th>2010 Target</th>
<th>2010 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Training: Number of individuals enrolled in degree training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of women</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Number of men</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Short-term Training: Number of individuals who received short-term training</td>
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<td></td>
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<tr>
<td>Number of women</td>
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<td>15</td>
</tr>
<tr>
<td>Number of men</td>
<td>37</td>
<td>20</td>
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<tr>
<td>Technologies and Policies</td>
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<tr>
<td>Number of technologies and management practices under research</td>
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<td>1</td>
</tr>
<tr>
<td>Number of technologies and management practices under field testing</td>
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<td>0</td>
</tr>
<tr>
<td>Number of technologies and management practices made available for transfer</td>
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<td>4</td>
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<tr>
<td>Number of policy studies undertaken</td>
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<td>1</td>
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<tr>
<td>Beneficiaries</td>
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<td></td>
</tr>
<tr>
<td>Number of rural households benefiting directly</td>
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<td>25</td>
</tr>
<tr>
<td>Number of agricultural firms/enterprises benefiting</td>
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<td>0</td>
</tr>
<tr>
<td>Number of producer and/or community-based organizations receiving technical assistance</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Number of women organizations receiving technical assistance</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Number of HC partner organizations/institutions benefiting</td>
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<td>7</td>
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<tr>
<td>Developmental outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of additional hectares under improved technologies or management practices</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Comment: in Honduras, the technologies and management practices under testing and made available for transfer will be the production and use of organic fertilizers (bokashi, compost, others) and biological products for disease and pest control.