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
In Angola, semi-structured interviews of small scale traders were conducted in common beans markets in Huambo and Londimbuali. Preliminary research on bean markets indicate a preference for local over imported beans, yet smallholder farmers in the Planalto region lack marketing strategies to reach those markets and trade organization appears weak, implying high transaction costs. Txocaine’s research identified the margins for traders in key common bean marketing channels and found that bean farmers are interested in improved production technologies, but wait for projects to ensure the inputs. While high transport costs restrict marketing, some farmers are able to transport to regional markets. Interviews with farmer groups found that most farmers sell into local markets or to traders arriving in the village, even when farmers associations exist. For market information, farmers listen to the new radio programs broadcasting prices, but indicated that these prices were not “reliable”, as they found different prices when they went to sell in the market. Phase II rapid appraisal market research on cowpeas markets in two provinces found that the peak sales months vary among markets. Almost all cowpea traders are women--many both grow and trade cowpeas. Traders identified various transport problems. In rainy season, some areas remain inaccessible. Price information for cowpeas (and beans) is limited to word of mouth, as cell phones function only in selected areas. Where phones function, traders used them to obtain price and other trading information. Traders identified quality as a key constraint to greater marketing--cowpeas is mixed, with different varieties and sizes in the bags and are infested with insects. While IDA distributed cowpea seeds in the region, IDA extension agents believed that many farmers ate the seeds. In the future, IIA and IDA need to do more to ensure adequate supplies of seeds, and develop delivery systems for inputs at the farm level. Estevao Chaves completed his MS thesis, using Mozambican data as Angolan time series price data were not available.

In Mozambique, semi-structured interviews were conducted with 109 traders (54 cowpeas, 55 beans traders) in northern/central Mozambique and Maputo’s wholesale market (15 traders). The market rapid appraisal by SIMA found that cowpea traders were more likely to sell to large warehouse agents (LWA), whereas bean traders were likely to sell to retailers—likely due to the developing value chain for cowpea processing/export. As LWA establish longer term links with local traders, cowpea traders are more local and less likely than common bean traders to work in more than one district. This value chain may lend itself more to developing targeted actions to
improve quality/post-harvest handling, since wholesalers can be a more easily organized. For beans, traders are informal and sell directly to retailers as there are few processors and organized bean traders. Market prices follow each other across the country’s markets. Currently, there are few processors and organized bean traders. CRSP research to evaluate cowpea markets and producer activities in southern Mozambique will provide insight into how cowpea production/marketing might be improved. Interviews with market traders in Maputo found that they sourced beans depending on relative prices and availability--sometimes importing from Swaziland/South Africa. Supermarkets, import beans due to poor quality of Mozambique’s beans, but also buy beans in the main production zones. Research under PABREN focused on enhancing farmer access to appropriate information on markets, including varietal choices and prices. This research in the northern bean areas is completed and in 2012 researchers will meet with farmer focus groups in the southern production areas. The database on cowpeas/bean prices has been created and is revised weekly, based on weekly SIMA price collection. SIMA continues to disseminate the data via radio, television, newspaper, and e-mail. Farmer focus groups for beans were conducted in the north in collaboration with PABREN. Currently farmer focus groups are being conducted in the south for cowpeas. Research on bean trade between Mozambique and South Africa (SA) found that import parity prices from SA were important in determining bean prices in Mozambique. Reducing transport and other transaction costs were identified as actions needed to ensure competitiveness of local beans throughout the year, since SA beans appear in markets in the off-season, while local beans are more available during the production seasons. Donovan worked USAID/Mozambique mission to develop the Feed the Future Strategy, which will include pulses. The project collaborated with the NSI to use cellphone technology for price information dissemination, but the system has suffered delays due to contracting issues. While 2007 Population Census data showed only 1% of rural households had cellphones, there has been rapid growth in rural cellular networks, cellphone-based information will be useful to traders and better off farmers.

In Honduras, strategies for managing the bean crops using organic fertilizers and household items and plant were tested in on-farm trials and demonstrate in farmers’ fields in collaboration with CIALs; and Rhizobium inoculation trials were conducted. At least 100 CIALs farmers are using organic fertilizer and pest control practices produced locally, and at least 50% are capable of producing their own organic fertilizer/pest control products at their own farms. Results from Rhizobium inoculant tests on farmer fields indicate the usefulness and potential adoption of this practice by small-scale bean producers. Technical assistance has been provided in stages. First, technical personnel and CIAL leaders are trained on production of organic fertilizer/pest control products at Zamorano’s Organic Agriculture Unit. Then, technicians and farmer leaders train other farmers at the local level; facilities were established producing organic fertilizer/pest control products at PRR and FIPAH and practical training courses/demonstration were carried Field trials/demonstration plots were used to promote adoption of these products. Periodical visits of NGOs technicians and farmer extensionists were conducted to follow up production/use of organic products at farm level. More than 50 farmers from CIAL received training at the local level and are producing/utilizing organic products on their commercial bean plots. Organic products are sold by PRR and FIPAH facilities and by farmer from CIALs locally. More than 15 NGO technicians/CIAL leaders have been trained on the production/use of organic fertilizers/ organic pest control products. During FY 2011, 15 young farmers were trained in 5 practical modules including one on organic agriculture. The use of plant extract as insect repellent and
foliar organic fertilizers on bean crops by CIALs farmers is quite common. Currently, the *Rhizobium* inoculant technology is in the farmer field testing stage. During the Primera 2011, inoculated and non-inoculated treatments were compared in farmer bean commercial production plots and more than 12 farmers were trained on the use of inoculants on beans. IMO staff was contacted to obtain third-party fairtrade certification for the farmer association. The IMO agreed to provide fair trade certification (pending the outcome of an audit visit) for the association and Whole Food Markets (WFM) guaranteed that it would purchase 20 MT of beans from the farmers at a farmgate price of $0.60/lb, if the association obtained fairtrade certification from the IMO. In March 2011 the PIs met with association leaders to discuss IMO certification requirements and sales to WFM and with other supply chain participants. While in early 2011 the farmers agreed to accept WFM’s price, because the local bean price had increased, they now wanted $0.75/lb. Upon returning to the US, Bernsten visited WFM’s office to provide background information about the farmers and request a higher price. While WFM agreed to pay $0.75/lb, when Rosas later contacted the farmers to confirm that they would accept WFM’s new price, the farmers wanted $0.85/lb—the price that local traders were now paying farmers. Subsequently, Bernsten contacted WFM to discuss options. As WFM could not pay the price that the farmers now wanted, we agree to postpone finalizing a purchase contract and wait until early 2012 to see if the local price declined to a price level that WFM was willing to pay. If the local price declined, WFM agreed to reconsider purchasing 20 MT of small red beans for delivery in mid- or late-2012. Consequently, plans to get IMO certification and export to WFM were postponed.

### Project Problem Statement and Justification

#### Angola

Common beans and cowpeas are important crops for smallholder farmers in Angola, with approximately 36% of households in a recent survey indicating that common beans were the most important source of cash income from crops. About two-thirds of household production was sold, for those households growing beans.

However, marketing constraints are clearly found in household surveys in the Planalto region of the country, such that farmers tend to sell from farmgate or in local markets due to ease of trading. Sales period is strictly based on harvesting period, rather than strategic considerations of storage and pricing. Looking more specifically at common beans, we find that many farmers sell into the local markets at harvest time simply because of convenience. Farmers who sell in more distant markets (27% of farmers in the region, based on survey estimates) indicate that they choose those markets in order to get higher prices, but they have transport expenses, as well as information constraints, making marketing more costly. Some 28 percent of farmers determine when to sell their beans based on price, yet the information available to help guide this choice is limited to mostly friends, family, and local traders.

A key question is whether or not there are areas for greater efficiency in the marketing system that would enable Angolan farmers to contribute greater amounts, substituting for imported beans as well as meeting unmet needs in the urban areas for the quality of beans demanded. Phase II of the research and training identified the costs associated with the marketing channels. Txocaine’s thesis provides evidence that intermediaries gain fairly high marketing margins. There are opportunities for farmers to increase their profits by selling into regional rather than
local markets, but a minority of farmers is organized to market in the larger, more distant markets. Additional work with World Vision and other local organizations is needed to ameliorate the information gaps which are reducing profitability and overall volumes marketed for beans.

Cowpea cultivation in Angola is more dispersed and marketing seasons more varied than for common beans. There is basically no information on cowpea producers and their marketing channels, and thus research will begin to fill in the gaps of information on cowpeas to assess potential.

**Mozambique**

In Mozambique, both cowpeas and common beans are marketed by smallholder producers, and the local market information system (SIMA) shows high seasonality in prices for the common bean, whereas cowpeas tend to have less dramatic variability, with more flexibility in planting seasons and locations. Cowpeas and common beans have different marketing channels. Wholesale common bean traders do not work with cowpeas or other legumes and prefer to specialize. Cowpea markets tend to be more localized, but recent developments suggest that new markets for processing may be arising, along with pigeon peas. IIAM researchers with SIMA have begun to identify some of the new initiatives in processing of cowpeas and pigeon peas for use in dhal for export to Southeast Asia.

The costs occurring through the various channels, both for cowpeas and common beans, were determined in the earlier rapid appraisal survey and traders have identified ways to minimize their costs using banking and cell phone technology. The current trading structure of common beans is primarily informal sector and does not lend itself easily to the formation of a bean task force. In July 2011, Pulse CRSP researchers helped TradeHub and AGRIFuturo to organize travel by South African traders and processors into the bean production zones of Mozambique, looking into possible linkages. Organizing farmers and assuring quality product were seen as critical.

Phase I research has identified the basic marketing channels for common beans, and work has only just begun on the marketing channels for cowpeas. Cowpeas are generally grown in different agro ecological zones compared to common beans, and cowpeas have a lower overall marketed volume.

**Honduras**

Common beans, the second most important food crop (95,000 ha) after maize, are an important source of food and cash income for smallholders. However, input costs are rising—which reduces farmers’ profits—and 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 technologies (i.e., organic alternatives to fertilizer and pesticides) that will enable them to reduce their input costs. In addition, they need access to new markets that will add value to their crop. This project focuses on testing organic crop management practices and developing new market opportunities for smallholders by producing and exporting fairtrade beans (small reds) to the US food retail market.
Results, Achievements and Output of Research
In all three countries, this research focuses on identifying potential market enhancements for smallholders in Angola, Honduras and Mozambique.

Angola and Mozambique
During Phase I, research in both Mozambique and Angola sought to describe and understand bean producers and their relationship to markets. Most recent efforts in Mozambique have involved evaluating the cowpea value chain, although there is still work to be completed to prepare a research report. Existing analysis for farmers and trading systems in Mozambique and in Angola has highlighted some key features of bean production and marketing, as well as cowpea marketing. Beans are seen as a cash crop by many farmers; trade networks are responsive to change; traders travel long distances and may specialize in beans; traders are adapting to new technologies and services (for example, cell phones and automatic teller machines at banks); and farmers make investments in improved varieties.

In both Mozambique and Angola, training workshops and guidance on value chain research for common beans and cowpeas has included price analysis and future training will include partial budgeting on technologies, survey research methods, and cost benefit analysis. One MS student has finished his study program and the second will finish in late 2011. Each will help to provide skills to their institutions.

Objective 1: Angola
Identify efficiency in marketing channels and leverage points to increase farmer profits and trader volumes.

Approaches and Methods
Semi-structured interviews were conducted in common beans markets in Huambo and Londimbuali.

Cowpea market research used a survey type called "Inquerito da Janela", developed in Mozambique by SIMA. The method consisted in sampling at random interviewees. A semi-structural questionnaire comprises of 4 sections with different headings was elaborated and submitted to 36 volunteers small scale traders. It was also pre-determined the direction of the survey (Huambo-Bengela-Huambo).

Results
Preliminary market research on bean markets indicated a preference for local beans over imported beans, yet smallholder farmers in the Planalto region lack marketing strategies to reach those markets and trade organization appears weak, implying high transaction costs. There are three key marketing months for beans: January, February, and June. Txocaine’s research was able to identify the margins for traders in key common bean marketing channels for Londimbuali. On the supply side, research by Txocaine showed that bean farmers are interested in improved production technologies, yet tend to wait for projects to ensure the inputs. The high cost of transport is a key factor restricting marketing, yet some farmers with higher levels of production are able to arrange transport to regional markets. Interviews with farmer groups of
World Vision found that most farmers continue to sell into local markets or to traders arriving in the village, even when farmers associations exist. For market information, farmers were listening to the new radio programs broadcasting prices, but farmers indicated that the prices were not “reliable” and that they found other prices when they went to the market, not the radio announced prices. This reflects a challenge for the market information system to train farmers on competition and markets, as farmers had been accustomed to government controlled prices and were confused, thinking that the radio prices were government announced prices.

Dr. Kiala, Artur Paulino (a student), and other UJES students focused Phase II rapid appraisal market research on cowpeas in markets of Benguela and Huambo Provinces. In some markets, December and January are the peak months for sales, whereas in other markets, June was the peak month, with various markets trading throughout the period January through June. The traders of cowpeas are almost entirely women, and many of them both grow and trade cowpeas. Traders identified various transport problems, having to use motorcycles or whatever is available to transport cowpeas to markets. In rainy season, some production areas remain inaccessible. As with common beans, price information for cowpeas is mostly limited to word of mouth and cell phones function only in selected areas. Where phones do function, traders were interested in using them for price and other trading information. Overall the traders identified quality problems as a key constraint to greater marketing, as the cowpeas are mixed, with different varieties and sizes in the bags, and there are problems of insect infestations, with inadequate post-harvest handling. IDA had distributed cowpea seeds in the region, but the IDA extension agent believed that farmers ate many of the seeds distributed, rather than planting them. This points to the need in the future for IIA and IDA to do more work to ensure adequate supplies of seeds, as well as to develop delivery systems for inputs at the farm level. Paulino will be following up with farmers receiving the IDA seeds in the coming months.

Estevao Chaves completed his MS thesis in August 2011, which was to contribute to diagnosis under this objective. However, due to the lack of time series data for Angola, he developed his thesis using Mozambican data. The analysis applied there will be useful in Angola, when time series price information is available.

**Outputs**

Estevao Chaves. Interdependência dos Preços de Feijão-Vulgar entre Cinco dos Principais Mercados em Moçambique. (Interdependence of common bean prices among fice ket markets in Mozambique). MS Thesis, the University of Vicosa, Brazil.


**Collaborators**
David Tunga, Food Security Department (DSA), MINAGRI
Moises Lima and Fabio da Cruz, World Vision PROREnda project, Huambo
**Objective 2: Mozambique**

**2.1 Identify efficiency in marketing channels and leverage points to increase farmer profits and trader volumes.**

**Approaches and Methods**
Semi-structured interviews were conducted with 109 traders (54 with cowpeas and 55 with common beans) in the northern and central parts of Mozambique during the rapid appraisal Windshield Survey. Additional interviews were conducted in the main Maputo wholesale market with another 15 traders.

Analysis of price data uses weekly data from selected markets within the SIMA system at wholesale and retail levels.

**Results**
The most recent market rapid appraisal by SIMA found that cowpea traders were much more likely to sell to large warehouse agents, whereas the common bean traders were more likely to sell to retailers. This difference is believed to be related to the developing value chain for cowpea processing and export, an area of future research. Large warehousing agents establish longer term links with local traders, and thus the cowpea traders tend to be more local and are less likely than common bean traders to work in more than one district. This value chain, at least in northern and central Mozambique, may lend itself more to developing targeted actions to improve quality and post-harvest handling, since wholesalers can be a more easily organized interest group. For common beans, the traders are generally informal and tend to sell directly to retailers in other markets. As one large-scale trader recently said, “the common bean traders get the job done and there is less potential for profitable actions” for large-scale private sector involvement. As figure 1 below indicates, market prices tend to follow each other across the markets of south, center, and north. Currently in Mozambique, there are very few processors and relatively few organized common bean traders.

There is ongoing IIAM research through the Pulse CRSP in association with PABREN to evaluate cowpea markets and producer activities in southern Mozambique. This will help provide insight into how cowpea production and marketing might be improved in southern areas. IIAM/CESE researcher Isabel Cachomba interviewed market traders in Maputo and found that they source beans depending on relative prices and availability. At times they purchase beans in Swaziland or South Africa, importing them informally to avoid import duties. This is more likely to happen around the end of the year, near the holidays. Formal sector stores, such as supermarkets, also tend to source beans from elsewhere in the region due to poor quality of Mozambique’s beans and the drying processes used. Otherwise they work with partners to buy beans in the main production zones. Various traders indicated that the quality of beans in the Linchinga area was the best, as farmers tended to dry the beans more for sales. Another advantage of the imported beans is that the beans are sorted, without the mixing as is found in sales of local beans.

Phase II Pulse CRSP activities are linked with PABREN network activities to enhance farmer access to appropriate information on markets, including varietal choices and prices in different
key markets. Under the PABREN effort, IIAM researchers are evaluating farmers’ preferences for varietal choice. The research on the northern bean-producing areas has been completed and the research results will be shared. Pulse CRSP funding will enable CESE researchers to go to the southern production areas to talk to farmer focus groups on varietal choice, early in FY 2012.

The database on cowpeas and common prices is available and is continually being revised, based on weekly SIMA price collection. SIMA continues its efforts to disseminate the data via radio, television, newspaper, and e-mail. The Ministry of Agriculture website (http://www.minag.gov.mz) is currently under reconstruction and will begin posting the Quente Quente weekly bulletin on a regular basis. Estevao Chaves from Angola used the SIMA price series to look at interdependence of prices among five key markets.

Farmer focus groups concerning common beans were conducted in the north in collaboration with PABREN. Currently farmer focus groups are being conducted in the south for cowpeas, so this work is still ongoing.

Ms. Gungulo, a CRSP student at University of Pretoria, developed a research paper on trade in dry beans between Mozambique and South Africa. Preliminary results suggest that import parity prices from South Africa were important in determining bean prices for farmers in Mozambique. Reducing transport and other transaction costs were identified as actions needed to ensure competitiveness of local beans throughout the year, since South African beans tend to appear in southern markets in the off-season, whereas domestic dry beans are more available in the production seasons.

Moving into the bean marketing season, there will be more forward progress on the market research, assuming that the vehicle is available soon. There have been several activities which complement the CRSP activities in Mozambique. Donovan met with TradeHub Legumes specialist Cuan Opperman, as well as with the McKinsey team working with the USAID Mozambique mission, to develop the Feed the Future Strategy. Pulses will be an area of investment under the FTF strategy, although we are waiting to see if pulses will be considered of primary or secondary importance under the final version. The team seemed to focus more on the pigeon peas and cowpeas due to export potential to India and elsewhere for dhal production.

**Outputs**


**Collaborators**
Jill Findeis, Pennsylvania State University; Arlindo Miguel and staff at the Agricultural Market Information System (SIMA), MINAG; Alda Tomo and Isabel Cachomba, IIAM/CESE
2.2 Develop cell phone-based information system for beans, to link farmers and traders to market prices and availability.

**Approaches and Methods**
Collaborative work will be implemented with the National Statistics Institute, involving farmer focus groups for pre-testing messages and instructions and providing enumerator with Short-Term in-service training on SMS system use.

**Results**
Regarding the cellphone technology for price information dissemination, the system has suffered delays due to contracting issues between the National Statistics Institute and the private firm providing the service, Syslog. Those issues have been resolved and SIMA is waiting for INE to resolve further technical issues with them.

The 2007 Population Census showed only 1% of rural households had cellphones, however, there has been rapid growth in rural cellular networks, so it is believed to be much higher. At least for now, cellphone information availability will be useful for a high percentage of the traders and better off farmers when it gets out.

**Outputs**
Draft SMS system in operation, but with data transfer complications to be resolved.

**Collaborators**
Arlindo Miguel and staff at the Agricultural Market Information System (SIMA), MINAG; Helder Vicente, Provincial Directorate of Agriculture, Zambézia; Balthazar de Brouwer, WFP P4P program; D. Cantor, SCIP project in Mozambique; and S. Nhane, the webmaster of the National Statistics Institute.

**Objective 3: Honduras**

3.1 Conduct on-farm trials to validated organic bean production practices, including organic fertilizers and pesticides based on extracts from local plants.

**Approaches and Methods**
Integrated approaches for management of bean crops using organic fertilizers (bokashi, compost, chicken manure, crop residues and others) and household items (e.g., detergent, oil, ethanol) and plant extracts (e.g., Gliricidia, nim, hot pepper, onion, garlic, parsley) that have proven to be effective in reducing insect pests and disease incidence and damage continue to be tested and demonstrated in bean farmer plots, in the Yojoa Lake, Yorito-Sulaco-Victoria, Vallecillo, and F. Morazán regions in collaboration with CIALs (local research committees) and NGOs. In addition, *Rhizobium* inoculation trials are conducted with the participation of farmer CIALs from the same regions and in the western bean production region in collaboration with the FAO-Seed for Development Project and in southern Honduras with the CARE/CIAT Project.

1 MSU is currently conducting a survey of farm households in most of Zambezi and Nampula Provinces and will be able to indicate cell phone ownership with the results of that survey in early 2012
Results
Farmers from participating CIALs of the Yojoa Lake, Yorito-Sulaco-Victoria and Vallecillo regions have implemented the use of organic fertilizers and pest control practices produced locally. The majority of these farmers are capable to elaborate their own organic products in their farms after received practical training. *Rhizobium* inoculant tests on bean farmer fields were conducted this year in several regions of Honduras.

Outputs
At least 100 farmers from participating CIALs are using organic fertilizer and pest control practices produced locally, and at least 50% of these farmers are capable of producing their own organic fertilizer and pest control products at their own farms. Results from *Rhizobium* inoculant tests on farmer fields indicate the usefulness and potential adoption of this practice by small-scale bean producers.

Collaborators
The Honduran NGOs Programa de Reconstrucción Rural (PRR) and Fundación para la Investigación Participativa con Agricultores de Honduras (FIPAH); and farmers organized as CIALs from Yojoa Lake (several municipalities in the departments of Comayagua and Santa Bárbara), Yorito-Sulaco-Victoria (municipalities in the Yoro department) and Vallecillo municipality (department of F. Morazan). At the regional level, the project collaborates with the Participatory Plant Breeding Program for the Mesoamerican Region (FPMA in Spanish), supported by the Norwegian Development Fund, on training and exchange activities related to agro-ecological management of the bean and maize crops.

3.2 Provide technical assistance to farmer groups interested in establishing commercial organic bean plots.

Approaches and Methods
Technical assistance has been provided in stages. First, technical personnel and farmer CIAL leaders received training on production of organic fertilizer and pest control products at the Organic Agriculture Unit at Zamorano. Then, technicians and farmer leaders trained other farmers at local level; facilities for production of organic fertilizer and pest control products at PRR and FIPAH were established and practical courses and demonstration were carried out for training. Organic products are sold at these facilities. Field trials and demonstration plots are used to promote the utilization of these products. Periodical visits of NGOs technicians and farmer extensionists are conducted to follow up the production and utilization of organic products at farm level.

Results
NGOs technical personnel and farmer leaders from Honduras and Central America have received training at Zamorano, in production and use of organic fertilizers and plant extracts for pest control. More than 50 farmers from CIAL received training at local level and are producing and utilizing organic products on their commercial bean plots. In addition, organic products are sold by PRR and FIPAH facilities and by farmer from CIALs locally.
**Outputs**
More than 15 NGO technicians and farmers CIAL leaders have been trained on production and utilization of organic fertilizers and organic pest control products in Honduras and Central America. During the present year, 15 young farmers (including 6 women) were trained in five practical modules including one on organic agriculture. The use of different plant extract (nim, onions, garlic, hot pepper and others) as insect repellent and the application of foliar organic fertilizers based on earthworm humus, compost, and other organic source of nutrients on bean crops by farmers from CIALs is quite common at the present. Currently, the *Rhizobium* inoculant technology is on the farmer field testing stage. During the Primera season of 2011, inoculated and non-inoculated treatments were compared in farmer bean commercial production plots and more than 12 farmers were trained on the use of inoculants in beans.

**Collaborators**
Same as in Objective 3.1.

**3.3 Assist farmer groups to obtain fair trade certification.**

**Approaches and Methods**
The objective of this sub-component is to work with a Honduran farmer association to produce and export fairtrade-certified beans to a US food retailer (e.g., Whole Food Markets, WFM). However, to sell beans and other commodities as fairtrade products, the producers must be fairtrade certified by a third party. Initially, we planned to obtain third-party fairtrade certification from the Fairtrade Labeling Organization (FLO-CERT), but this proved to be problematic. Since FLO had never previously certified dry beans, they had not set “standards” for this commodity and would not initiate the 6-9 month process to set “standards” and a “fairtrade price” (i.e., a price that covers costs of production plus a profit margin of 10%) unless there existed evidence (a buyer contract) that there was a demand for the product. And, without prior certification (including a fairtrade price), it was impossible to negotiate a contract with a US buyer. While certification by the Rainforest Alliance (RA) was an option, we decided not to pursue this because RA certification is not widely recognized in the US retail food market. Thus, following WFM’s suggestion, we decided to seek certification from the International Marketing Organization (IMO). Because the IMO certifies farmer groups, rather than commodities, the process for obtaining certification is more straightforward. After being contacted, the IMO confirmed that they could certify the farmers in Honduras. Subsequently, after completing the IMO’s preliminary application (which the IMO approved), the IMO sent an invoice (cost estimate for a certification audit/visit) and documents (100+ pages) describing the requirements that the farmers had to meet to be certified. Subsequently, Dr. Rosas met with the farmer association (ASOCIALAYO) to discuss the IMO’s requirements. However, before scheduling a certification audit visit by the IMO (which would cost $2,500), we needed confirmation from WFM that they would purchase the beans at a price acceptable to the farmers.

**Results**
The IMO agreed to provide fair trade certification (pending the outcome of the audit visit) for the farmer association and, as discussed below, WFM guaranteed that it would purchase 20 MT of fairtrade beans from the farmer at a farmgate price of $0.60/lb, if the farmer association obtained fairtrade certification from the IMO. However, after initially agreeing to this price, the farmers
decided that they wanted a higher price—a price that WFM was unable to meet. Consequently, the IMO’s certification (audit) visit was postponed until the farmers agreed to sell their beans at a price that was acceptable to WFM.

**Outputs**
While we did not pursue securing fairtrade certification, cost of production data were collected, as required by the IMO for determining a “fair” price. Thus, having established contact with the IMO and having estimated the costs of bean production, if in the future the farmers agree to sell their beans at a price acceptable to WFM, protocols are in place to schedule an IMO certification (audit) visit.

**Collaborators**
US: The principal buyers of bulk commodities at WFM’s US headquarters in Austin TX and the person in charge of fairtrade certification at the IMO, based in San Francisco, CA.
Honduras: The elected leaders of the members of the farmer association (ASOCIALAYO).

### 3.4 Export fair-trade beans to a US retailer.

**Approaches and Methods**
Prior to being able to contract farmers to produce beans for export to a US food retailer as fairtrade beans, it is necessary to: 1) obtain fairtrade certification for the farmer association, 2) document the links in the supply chain from the farmgate to the US port of entry, 3) estimate the costs associated with each stage of the supply chain (i.e., fairtrade certification, production, transporting a container to the village, cleaning/packing the beans, fumigation, transporting the container to the port, obtaining a Honduran export permit, Aphis inspection charges, US customs clearance charges, shipping to the US/Houston TX, and the broker’s service charges), 4) identify a broker who could be contracted to transport the beans from the farmgate to the Honduran export port and complete the required export-related paperwork, 5) identify a US food retailer who would purchase the beans and provide a purchasing contract, 6) identify a price that was acceptable to the US retailer and the farmer association, 7) obtain an export permit (due to supply shortages, the government frequently place an embargo on exports), and 8) provide the farmers with a contract specifying the quantity and quality standards required by the buyer.

**Results**
Throughout the year, many phone and e-mail contact were made with WFM’s bulk commodity buyers to update them on the project and negotiate a purchase price. In early March 2011, Whole Food Markets (WFM) agreed to purchase 20 MT of small red beans (under its Global certified Trade Program) for delivery in January 2012 at a farmgate price (US$ 0.60/lb) that the farmers had agreed to in early 2011. After adding supply chain costs, this farmgate price translated to a price of US$ 0.87/lb delivered to the US port at Houston, TX. In late March, Rosas and Bernsten met with the leaders of the leaders of the farmer association to discuss logistics (e.g., production costs, production schedule, and purchasing arrangements), collected data from the farmers to estimate their bean production costs in order to document that the price offered by WFM was a “fair price” (these data are require by the IMO). In addition, we met with 1) a bean broker to discuss logistics and costs related to collecting the beans at the farmgate and transporting them to
Honduras’ export port and 2) Honduran government official to obtain information regarding the process for applying for an export permit.

However, since early 2011, the local price of beans had increased substantially, due to production shortfalls in the previous Primera and Postrera seasons. Thus, at the March meeting with the leaders of the farmer association, they requested a higher price (US$ 0.75) than WFM had originally agreed to pay. After returning from Honduras in April, Bernsten visited WFM in Austin TX to meet with the bulk commodity purchasing staff to negotiate a higher bean price. At this meeting, Bernsten made a PowerPoint presentation which provided an overview of the project, including its history, photos of the farmers in their bean fields, the supply chain costs, and the reasons the farmer wanted a higher price than WFM originally offered. While WFM agreed to the new price that the farmers wanted (US$ 0.75), the local bean price continued to increase. Thus, when Rosas met again with the farmers to offer them WFM’s new price (US$ 0.75/lb), the farmers noted that the retail price was now US$ 1.00/lb and local traders were currently offering farmers US$ 0.85/lb. Furthermore, the farmers expected that the local bean price would continue to remain high. Subsequently, Bernsten contacted WFM to discuss options. As WFM could not offer the farmers the price that they now wanted, we agree to postpone finalizing the purchase contract and wait until early 2012 to see if the local price declined to a price level that WFM was willing to pay. If the local price declined, WFM agreed to reconsider purchasing 20 MT of small red beans for delivery in mid- or late-2012.

This situation highlights the challenge of getting farmers to agree to contract their bean production at a future price, when local price of beans is highly volatile and the buyer (WFM) is only willing to pay a price at which it estimates consumers will be willing to pay at its retail stores. Farmers are used to selling their beans on the spot market price, rather than contracting at a future price. Because farmers correctly or incorrectly expected that the price of beans would continue to be close to $ 0.85/lb in January 2012, they were unwilling to contract for a lower price in May 2011--7 months prior to when they would be selling to WFM.

Given that the initiative to sell fair trade beans to a WFM is on hold, Bernsten postponed completing the research paper on constraints and opportunities for exporting fair trade beans until after the above described situation is resolved.

**Outputs**
Documentation of the supply chain and costs associated with each component of the supply chain.

Documentation of the costs of bean production.

**Collaborators**
US: The principal bulk commodities buyers at WFM’s US headquarters in Austin
Honduras: The elected leaders of the leaders of the farmer association (ASOCIALAYO), a bean broker, and government officials responsible for issuing an expert permit.
Objective 4: Institutional capacity building

Degree Training
First Names: Ana Lidia
Last Name: Gungulo
Citizenship: Mozambique
Gender: Female
Degree: MS
Discipline: Agricultural Economics
Host Country Institution to Benefit from Training: IIAM
Training Location: University of Pretoria, South Africa
Supervising CRSP PI: Cynthia Donovan
Start Date of Degree Program: January 2009
Program Completion Date: December 2011
Training status during Fiscal Year 2011: Active
Type of CRSP Support (full, partial or indirect): Full

First Names: Estevao
Last Name: Chaves
Citizenship: Angola
Gender: Male
Degree: MS
Discipline: Agricultural Economics
Host Country Institution to Benefit from Training: University of Agostinho Neto, Angola
Training Location: Federal University of Vicosa, Brazil
Supervising CRSP PI: Cynthia Donovan
Start Date of Degree Program: January 2009
Program Completion Date: July 2011
Training Status during Fiscal Year 2011: Completed
Type of CRSP Support (full, partial or indirect): Full

Short-Term Training: Mozambique
Type of Training: Analysis of market price data
Description of Training Activity: Participants will work with data from SIMA and complete analysis to understand analytical methods and research issues related to market prices
Status of this Activity as of September 31, 2011: Completed in November
When did the Short-Term Training Activity occur?: November 2011
Location of Short-Term Training: Maputo, Mozambique
Who benefited from the Short-Term Training Activity?: 12 staff (2 from UAN/Angola, 5 from IIAM, and 5 from Directorate of Economics/MINAG, which includes SIMA)
Numbers of Beneficiaries by Gender: Male 6, Female 6, Total 12

Short-Term Training: Mozambique
Type of Training: Camtasia screen recording software
Description of Training Activity: Taught participants how to use Camtasia software
Status of this Activity as of September 30, 2011: Completed
When did the Short-Term Training Activity occur?: May
Location of Short-Term Training: IIAM, Maputo, Mozambique
Who benefitted from this Short-Term Training Activity? IIAM and UJES
Number of Beneficiaries by Gender: Male-2, Female-0, Total-2

**Short-Term Training: Mozambique**
Type of Training: Survey research methods
Description of Training Activity: Participants will work with specific aspects of survey methods and evaluate existing survey instruments and methods in exercises
Status of this Activity as of September 30, 2011: Not completed
When did the Short-Term Training Activity occur?: Postponed until early 2012
Location of Short-Term Training: Maputo, Mozambique
If Training was not completed as planned, provide a rationale: R. Bernsten was unable to travel to the region until early 2012.
Who (anticipated) benefitted from this Short-Term Training Activity: CESE analysts (9) and DAP (6) staff will benefit
Numbers (anticipated) of Beneficiaries by Gender: 6 women and 9 men

**Short-Term Training: Mozambique**
Type of Training: Cost Benefit Analysis
Description of Training Activity: Participants will attend sessions to understand the development and use of cost benefit analysis. This will be applied training.
Status of this Activity as of September 30, 2011: Not completed
When did the Short-Term Training Activity occur?: Postponed until early/mid 2012
Location of Short-Term Training: Maputo, Mozambique
If Training was not completed as planned, provide a rationale: E. Crawford was unable to travel to the region until early/mid 2012.
Who (anticipated) benefitted from this Short-Term Training Activity: CESE analysts (9) and DAP (6) staff will benefit
Numbers (anticipated) of Beneficiaries by Gender: 6 women and 9 men

**Short-Term Training: Mozambique**
Type of Training: Intensive English Course
Description of Training Activity: One CESE analyst will live with a family in South Africa and study English intensively, with 30 sessions per week for 8 weeks
Status of this Activity as of September 30, 2011: Not completed
When did the Short-Term Training Activity occur?: Postponed
Location of Short-Term Training: Capetown, South Africa
If Training was not completed as planned, provide a rationale: F. Mazuze indicated that the English training needs to be associated with future studies and no CESE staff have yet been accepted into graduate programs to take advantage of this training.
Who (anticipated) benefitted from this Short-Term Training?: IAMA staff
Number (anticipated) Beneficiaries by Gender: Male 1, Female 0, Total 1
**Short-term Training: Angola**

*Type of Training:* Analysis of market price data  
*Description of Training Activity:* Participants will work with data from DSA or elsewhere and complete analysis to understand analytical methods and research issues related to market prices.  
*Status of this Activity as of September 30, 2011:* Not completed  
*When did the Short-Term Training Activity occur?* Postponed until December 2011  
*Location of Short-Term Training:* Luanda, Angola  
*If Training was not completed as planned, provide a rationale:* Due to scheduling issues, we were unable to conduct this training as planned. The next window of opportunity is in December 2011.  
*Who (anticipated) benefitted from this Short-Term Training?* UAN/Angola staff (10) and possibly DAS staff (5-10)  
*Number (anticipated) of Beneficiaries by Gender:* Male 8, Female 12, total 20

### List of Equipment Costing >$5,000

**Mozambique**

*Four wheel drive, double cabin pickup truck*  
*Given the multiple foci of bean production and the lack of transport at the Northwestern Zonal Research Center, market and farmer research requires transport facilities. Note with earlier research, vehicles from other zonal research centers were made available, but it has become a major limiting factor.*

IIAM/CESE received funds for purchase in late September 2011 and is in the process of finalizing the purchase in October 2011. IIAM will cover the costs of a driver, maintenance, and other operational costs. $40,000 was been budgeted for the purchase.

### Explanation for Changes

**Angola: Objective 1**

Donovan gave a price seminar to undergraduate students while in Angola in late 2010, but still pending is the more extensive, Excel based training for analysts and more advanced students. Angola price training was to be conducted in March 2011, while Donovan was in Angola for other work, but the timing did not work for UJES. Planning is underway for training in December 2011 or February 2012. Scheduling has been a major challenge.

Attempts to time travel with the PIs of other Pulse CRSP projects in Angola have proven unsuccessful. December 2012 presents the next opportunity and we are working on that. Unfortunately, student final exams are scheduled during the next travel period for UPR researchers.

Database development has waited for Estevao Chaves to return to Angola, which only occurred in August of 2011. He will be working with UJES colleagues on this with World Vision staff in early FY 2012.

**Mozambique: Objective 2**

The cellphone technology for distributing price information has once again been delayed for SIMA due to reliance on the partnership with the National Statistical Institute (INE). As indicated above, INE delayed in establishing a contract with the service provider. Bean farmers...
will be among the first to be trained in using the technology once it is functioning and the Farmer Focus groups on this technology will be conducted then.

The authorization for the purchase of a vehicle has yet to be approved by USAID/Washington and it is constraining all of the field work, given the scarcity of vehicles with MINAG. The overall report and outreach are still pending, with Ana Lidia Gungulo due back in late 2011.

Survey research training with Dr. Bernsten has been postponed into early 2012 due to scheduling issues. Cost benefit training with Dr. Crawford has also been difficult to schedule and will be in early 2012, as there is high demand for this training. The PIs are concerned about training delays, with training pushed until FY2012.

As indicated above, the vehicle purchase for early FY2011 was delayed as we waited for USAID. Further delays occurred as new paperwork was needed for the funds transfer. The funds transfer was completed in late September of FY 2011, and the vehicle purchased finalized in Oct 2011.

**Honduras: Objective 3**
Scheduling a IMO certification (audit) site visit, the final step in obtaining IMO certification, was postponed, given that the farmers would not agree to the price that WFM was willing to pay for their beans.

The production and export of fair trade beans was postponed, given that the farmers would not agree to the price that WFM was willing to pay for their beans.

**Achievements in the period April 1, 2011 – September 30, 2011:**
**Objectives/Activities planned and not achieved**

**Objective 1: Angola:**
Farmer focus groups were postponed. With Estevao Chaves back in Angola, UJES and MSU look forward to working with World Vision colleagues to organize these meetings. Estevao will also need to pull together the database, using World Vision prices, as there is still no national price data collection.

**Objective 2: Mozambique**
Farmer focus groups concerning common beans were conducted in the north in collaboration with PABREN. Currently farmer focus groups are being conducted in the south for cowpeas, so this work is still ongoing. The authorization for the purchase of a vehicle has yet to be approved by USAID/Washington and it is constraining all of the field work, given scarcity of vehicles with MINAG. The overall report and outreach are still pending, with Ana Lidia Gungulo due back in late 2011.
Focus groups with farmers on the cell phone potential were also postponed due to scheduling conflicts with the SIMA staff.

**Objective 3: Honduras**
In early March 2011, Whole Food Markets (WFM) agreed to purchase 20 MT of small red beans for delivery in January 2012 at the price that the farmers had agreed to in early 2011. In late
March, Rosas and Bernsten met with representatives of the farmer group to finalize the purchasing arrangements and meet with an exporter/broker to finalize exporting arrangements. In addition, confirmed with the farmers their production costs to document that the price offered by WFM is a “fair price” (these data are require by the IMO, the third party certifier who agreed to certify the farmers beans as meeting fair trade standards). However, since early 2011, the local price of beans increased substantially, due to production shortfalls in the previous Primera and Postrera seasons. Thus, at the meeting with the farmer group, the farmers requested a higher price than WFM had originally agreed to pay. In early April, Bernsten visited with the purchasing agents at WFM’s Austin, Texas headquarters to negotiate a higher price for the farmers. While WFM agreed to the price that the farmers wanted, the local bean price continued to increase. Thus, when Rosas met with the farmers to offer the higher price, the farmers noted that local traders were currently paying a higher price (nearly $1/lb) than Bernsten had renegotiated with WFM. Subsequently, Bernsten contacted WFM to discuss options. As WFM could not offer the farmers the price that they now wanted, we agree to postpone finalizing the purchase contract and wait until early 2012 to see if the local price declined to a price level that WFM was willing to pay. If the local price declined, WFM agreed to reconsider purchasing 20 MT of small red beans for delivery in mid or late 2012.

This situation highlights the challenge of getting farmers to agree to contract their bean production at a future price, when local price of beans is highly volatile and the buyer (WFM) is only willing to pay a price at which it estimates consumers will be willing to pay at its retail stores. Farmers are used to selling their beans at the spot market price, rather than contracting at a future price. Because farmers correctly or incorrectly expected that the price of beans would continue to be close to $1/lb in January 2012, they were unwilling to contract for a lower price in May 2011, 6 months prior to when they would be selling to WFM.

Given that the initiative to sell fair trade beans to a WFM is on hold, Bernsten postponed completing the research paper on constraints and opportunities for exporting fair trade beans until after the above described situation is resolved.

**Objective 4: Capacity Building**

Angola price training was to be conducted in March 2011, but the timing did not work for UJES. Planning is underway for training in December 2011. Scheduling has been a major challenge. Donovan did give a price seminar to undergraduate students while in Angola in late 2010, but there is still pending the more extensive, Excel based training for analysts and more advanced students.

Mozambique: Survey research training with Dr. Bernsten has been postponed into early 2012 due to scheduling issues. Cost benefit training with Dr. Crawford has also been difficult to schedule and will be in late 2011 or early 2012 as there is high demand for this training.

**Networking and Linkages with Stakeholders**

**Angola**

The project PIs met in Huambo with World Vision, a key development agency involved in farmer productivity and market extension activities with its ProRenda project. Donovan worked with their marketing officer to modify data collection and dissemination aspects. Students will
have access to the database of prices as it develops, but it is still of short duration and limited usefulness for analysis. The links of this work with that project also enables outreach directly to farmer associations in the Planalto Region of Angola. As suggested by the USAID mission in Angola, Donovan also met with the Farmer to Farmer director for Angola and discussed potential linkages between the programs on extension messages and market information.

**Mozambique**

Discussions with TradeHub, Agrifuturo, and a private sector marketing firm (OLAM) have focused on two aspects. For TradeHub, the effort was to link South Africa traders and processors to producers and markets in northern Mozambique. With OLAM, the discussions focused on using OLAM buying points for storage and other technology dissemination. We will need to take advantage of those links in FY2012. PABREN and Pulse CRSP researchers wish to move the “Feijão”² Task Force forward jointly.

**Honduras**

The PI’s met with: 1) the leaders and members of the farmer association to discuss the IMO certification process, the certification timetable, the costs of bean production, and the price that they required to supply WFM with 20 MT of beans, 2) a bean broker in Tegucigalpa to identify steps that had to followed to export the beans and the costs associated each step, 3) government official to understand the process for obtaining an export permit, and 4) bulk commodity purchasing staff at WFM to update them regarding the costs involved at each stage of the supply chain and to negotiate the price that WFM would be willing to pay for the beans.

**Leveraged Funds**

**Angola**

Name of PI receiving leveraged funds: Cynthia Donovan
Brief description of leveraged project and purpose: Funds for the markets research and price data collection.
Dollar Amount: It is difficult to calculate the value of contributions. At a minimum, we estimate $1,000 for Donovan travel to Angola.
Funding Source: World Vision

**Mozambique**

Name of PI receiving leveraged funds: Feliciano Mazuze
Brief description of leveraged project and purpose: PABREN funds for market research, farmer focus groups in the north
Dollar Amount: $5,000 (estimated)
Funding Source: PABREN

**Honduras**

Name of PI receiving leveraged funds: Juan Carlos Rosas
Brief description of leveraged project and purpose: Funds for supporting research related to agro-biodiversity, seed production, and organic bean production
Dollar Amount: $50,000/year; Funding Source: Norwegian Development Fund

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² The word Feijão in Portuguese covers both beans and peas.
Scholarly Activities and Accomplishments

Angola


Mozambique
Publications pending.

Michigan State University/Honduras
In April 2011 PI Richard Bernsten received The Ralph H. Smuckler Award for Advancing International Studies and Programs at MSU, The award recognizes and rewards a faculty member each year for his/her significant and lasting impact on the advancement of international scholarship, teaching, and public service.

Tables/Figures

Mozambique

![Figure 1: Common bean price tendencies in the markets of Lichinga, Maputo, Maxixe, Nampula e Tete, January 2005 – January 2011, in Meticais/Kg](image)


Literature Cited
No literature cited.

Contribution to Gender Equity Goals
In all countries, women participated in training activities and analysis of survey data included gender analysis.

**Angola**
The survey samples included women and the analysis of these data analyzed gender issues. Note: almost all cowpea traders are women.

**Mozambique**
The MS training of 1 female researcher was supported by the CRSP. In addition, 6 women participated in Short-Term training activities.

**Honduras**
Six women participated in Short-Term training. In addition, many of the participants in the on-farm trials were women and many women farmers are using organic fertilizer and pest control products.

**Progress Report on Activities Funded Through Supplemental Funds**

**Mozambique**
The computers, cameras and software (Camtasia) were purchased in FY 2011 and both Angola (UJES) and Mozambique (IIAM) are now using the equipment. Training on Camtasia was completed in early May 2011, and the team recorded an initial program on bean pricing in Mozambique, in collaboration with SIMA staff member Dolito Longanemio. The Angolan technical specialist Guilherme Eculica was in Mozambique May 10-13, working with Sostino Mocumbi (IIAM), Dolito Longanemio (SIMA), David Cantor (SCIP project), and Donovan. With TradeHub, there is interest in the assisting with dissemination of storage information, so we will be linking him with the IIAM effort to create Portuguese voice overs for the University of Illinois animated videos showing solar drying and triple bagging. Our IIAM collaborator under the Capacity Building project has already created the voice over for the solar drying of cowpeas and we will be working further with IIAM and others to evaluate the usefulness of this communication technology with Pulse CRSP collaborator Barry Pittendrigh at University of Illinois.

**Honduras**
No supplemental funds received
### Objective 1: Angola
1. Identify efficiency in marketing channels & leverage points to increase farmer profits & trader volumes

Outreach on marketing report (Phase I) for smallholders and other stakeholders
- Database on bean production and marketing documented and established
- Focus groups with farmer associations held on marketing analysis

### Objective 2: Mozambique
1. Identify efficiency in marketing channels & leverage points to increase farmer profits & trader volumes

Database on bean production and marketing documented and established
- Farm focus groups to discuss results and identify opportunities
- Meeting of National Bean Task Force
- Summary report on two windshield surveys and bean results
- Conduct additional field research with Windshield Survey 2011

### Objective 3: Honduras
1. Conduct on-farm trials to validate organic bean-production practices, including organic fertilizer and pesticide from plant extracts

On-farm trials using organic fertilizer and plant extracts
- Conduct commercial organic plots

2. Provide technical assistance to farmer group interested in establishing commercial organic bean plots

Collaborate with NGO on assisting CIAL
- Conduct training course

3. Assist farmer groups to obtain fairtrade certification

Prepare request with farmer organization
- Submit request for certification

4. Export fairtrade beans to a US retailer

Negotiate export contract
- Finalize export of beans

5. Research papers summarizing constraints & opportunities for exporting fair trade beans

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**Abbreviated name of institutions**

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<tr>
<th>#REF!</th>
<th>UNA</th>
<th>IIAM</th>
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<th>Objective 4: Capacity Building</th>
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<tbody>
<tr>
<td><strong>Angola</strong></td>
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<tr>
<td>MS Thesis proposal</td>
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<tr>
<td>MS thesis field research designed and conducted</td>
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<td>Students trained on use of market price data</td>
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<td><strong>Mozambique</strong></td>
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<td>MS thesis proposal for Univ. of Pretoria</td>
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<td>MS thesis field research designed and conducted</td>
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<td>CESE staff trained in Price data analysis</td>
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<td>CESE staff trained in Survey Research methods</td>
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<td>CESE staff member completes Intensive English course</td>
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<td><strong>Honduras</strong></td>
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<td>Training course for organic bean production</td>
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<th>Bernsten-Donovan</th>
<th>Donovan-Kiala</th>
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<td>Name of the U.S. Lead PI submitting this Report to the MO</td>
<td>Richard H. Bernsten</td>
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* 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, 2010 -- September 30, 2011)

**FY 2011 PERFORMANCE INDICATORS**
for Foreign Assistance Framework and the Initiative to End Hunger in Africa (IEHA)

**Project Title:** Expanding Pulse Supply & Demand in Africa & Latin America:
Identifying Constraints & New Opportunities

**Lead U.S. PI and University:** Rick Bernsten, MSU

**Host Country(s):** Angola, Mozambique, Honduras

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<th>Output Indicators</th>
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<th>2011 Actual</th>
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