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Strategic Investment in Rapid Technology Dissemination: Commercialization of Disease Resistant Bean Varieties in Guatemala, Nicaragua, Honduras and Haiti.

Short Project Title: Bean Technology Dissemination (BTD)

(Associate Award to the Dry Grain Pulses CRSP) October

1, 2010 – September 28, 2013

BEAN TECHNOLOGY DISSEMINATION (BTD)

TECHNICAL PROGRESS REPORT

June 2011

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LIST OF ACRONYMS

Acronym	Meaning
BLPS	Bancos Locales para la Producción de Semilla - Nicaragua
BTD	Bean Technology Dissemination Project
CIAT	Centro de Investigación Agrícola Tropical
CRSP	Collaborative Research Support Program
cwt	Hundred-weight (sacs of 100lbs)
DICTA	Dirección de Ciencia y Tecnología Agropecuaria-Honduras
DR	Dominican Republic
EAP	Escuela Agrícola Panamericana-Zamorano
FIPAH	Fundación para la Investigación Participativa con Agricultores en Honduras
FTF	Feed the Future
FUNDIT	Fundación para la Innovación Tecnológica, Agropecuaria y Forestal
FY	Fiscal Year
ICTA	Instituto de Ciencia y Tecnología Agrícolas
IDC	Indirect Cost - rate
IICA	Instituto Interamericano de Cooperación para la Agricultura
INTA	Instituto Nicaragüense de Tecnología Agropecuaria
MO	Management Office-MSU
MSU	Michigan State University
MT	Metric Tons
NGO	Non-Governmental Organization
NSS	National Seed Service-Haiti
SNEA	Sistema Nacional de Extensión Agrícola-Guatemala
SOW	Scope(s) of Work
UNISEM	Unidad de Semilla - INTA Nicaragua
UPR	University of Puerto Rico
USAID	US Agency for International Development

1. INTRODUCTION

The Bean Technology Dissemination (BTD) project addresses the shortage of high-quality bean seed available to resource-poor farmers in Haiti, Guatemala, Honduras and Nicaragua. The objectives of the project are aligned with the goals of the U.S. Government's Feed the Future (FTF) Initiative in which involves a multi-agency response to increasing staple food prices and the persistent food insecurity by many developing countries. Specifically, the BTD project supports four central goals of FTF: (1) to increase agriculture productivity, profitability and income of farm families, (2) to disseminate outputs of agriculture research so as to reduce risk/vulnerability and to increase productivity gains of staple crops, (3) to increase market access in an improved policy environment with greater private sector investment, and (4) to increase nutritional interventions so as to reduce child mortality and improve nutritional outcomes. Edible legumes (pulses) are critically important as a source of income and as a nutrient-dense staple food to address household food and nutritional security needs of poor small-holder farmers world-wide. The BTD project will make available a technology package consisting of improved bean varieties (developed through collaborative research by the Bean/Cowpea and Dry Grain Pulses CRSPs) and *Rhizobium* inoculants along with training on best production and seed conservation practices so as to sustainably increase bean productivity by small-holder resource-poor farmers in the region.

The project officially started on October 1, 2011. The most critical initial actions for the project were defined during a first regional planning meeting held in Guatemala on November 30 – December 3, 2010. Partner institutions represented at the meeting included the Instituto de Ciencia y Tecnología Agrícolas (ICTA) and the Sistema Nacional de Extensión Agrícola (SNEA) of Guatemala, Escuela Agricola Panamericana-Zamorano and the Dirección de Ciencia y Tecnología Agropecuaria (DICTA) of Honduras, the Instituto Nicaragüense de Tecnología Agropecuaria (INTA) of Nicaragua, the Instituto Interamericano de Cooperación para la Agricultura (IICA) and the National Seed Service of Haiti, the University of Puerto Rico and Michigan State University (MSU) (the lead institution for the BTD project). The meeting was led by Dr. Luis Flores, Project Manager, and MSU.

Critical issues discussed at the meeting included: (1) the production and/or procurement of registered seed for multiplication and subsequent dissemination to target beneficiaries in each country; (2) identification of partners, institutional roles and coordination of activities; (3) initial formulation of workplans (Scopes of Work) and budgets for project activities of individual institutions in Year 1 (October 1, 2010 – September 30, 2011); (4) definition of the monitoring and evaluation criteria for project activities.

During the first four months of 2011, the Project Manager, Dr. Luis Flores, and the Management Office of the Dry Grain Pulses CRSP at Michigan State University, focused its attention on finalizing technical plans for each partner institution (as defined in the SOWs) and the budgets, plus on negotiating fixed price contracts. This task required much more time and interaction than originally anticipated due to the need to adopt different approaches for seed multiplication and dissemination to each country context due to unique attributes and programmatic priorities of the partner institutions. The Dry Grain Pulses CRSP's Management Office (MO) views this diversity in approaches/models for sustainable seed systems as an opportunity and a strength, rather than a weakness of the project. Such array of country-specific approaches will provide an opportunity for the Performance

Monitoring and Evaluation team to gather baseline data and assess the effectiveness and sustainability of the alternative seed systems being implemented within the Central American region and Haiti.

At the present time, MSU is pleased to report that the BTD project has been executed and activities initiated. Fixed price contracts, including FY11 SOWs, budgets and "deliverables" for Performance Monitoring and Evaluation, have been completed (with subcontracts signed and first installments paid) or in the final stages for all the partner institutions. See attached compilation of FY11 Project Descriptions, SOWs and budgets for the BTD project.

To initiate seed multiplication activities to achieve dissemination goals, MSU is also pleased to report that "Registered" seed of improved CRSP bean varieties has been produced in or procured for all four countries; Guatemala, Honduras and Nicaragua and Haiti. In the case of Haiti, it was necessary to procure in January 2011 additional seed from the Dominican Republic (DR) due to limited availability of registered seed in Haiti and the lower cost of quality seed in the DR. The improved bean varieties produced in the DR (DCP-40) are well adapted to and the same varieties as needed in Haiti. As progress is made in seed reproduction and dissemination, the monitoring and evaluation activities for each country will be further developed and implemented.

This report presents administrative and programmatic details with special emphasis on key activities that set the course of immediate field actions. A partner-by-partner analysis in each country is offered to provide an explanation of the differences in the scope of each institution‟s workplan for the respective country. Finally, lessons learned and next steps for the rest of Year 1 are outlined.

2. BACKGROUND ON PARTNERS

GUATEMALA

Institute of Agricultural Science and Technology (ICTA)

The Instituto de Ciencia y Tecnología Agrícolas (ICTA) is the public institution responsible for carrying out research to produce genetic materials and develop improved integrated crop management practices to increase agricultural productivity, promote the use of technology at the farmer level, and to stimulate regional rural development. The impact of ICTA programs on domestic food security in Guatemala has been highly praised in past years due in part to the release of improved bean varieties with excellent yield potential and resistances to the economically important biotic and abiotic constraints in the various bean production regions of Guatemala. The Bean Program of ICTA collaborated with Dr. James Kelly, Michigan State University, through the former Bean/Cowpea CRSP (2002-2007) to breed for higher yielding varieties of small black beans. These institutional ties as well as knowledge of the bean sector in Guatemala have already proven to be highly valuable in implementing the project. The social capital and the vested interest in partnering in the project hopefully will contribute to effective communication and collaboration.

The BTD project has chosen to work with ICTA for the following reasons:

1) Strong recognition of ICTA‟s role in the breeding, validation, and release of improved bean varieties for commercial production by farmers in Guatemala.
2) ICTA has the mandated responsibility to certify "seed" that is produced in Guatemala for distribution by public and private organizations.
3) ICTA has previous experience in the production and use of *Rhizobium* inoculants to enhance biological nitrogen fixation in legume production systems.
4) The head of the ICTA Programa de Frijol (Bean Program), Ing[1]. Julio Cesar Villatoro has been a strong collaborator in previous CRSP projects in Guatemala and has demonstrated a strong commitment to progressively working towards the BTD project goals.

National Extension Service (SNEA)

The *Sistema Nacional de Extensión Agrícola* (SNEA) is a recently launched program by the Guatemalan Ministry of Agriculture, Food and Livestock (MAGA). No comprehensive agricultural extension service existed previously in Guatemala due to structural adjustment programs in the mid-1990s which reorganized government offices to downsize, thereby reducing the state fiscal deficit. Recently, and in response to poverty alleviation and food security challenges, the SNEA has been revived with three major objectives: (1) to support rural farming families to produce food with improved technology; (2) to revitalize rural household economies by facilitating surplus trade; and (3) to support productive processes through social, environmental and economic sustainability. The BTD project has chosen to partner with SNEA for the following reasons:

1) SER has extension offices and technical staff in the departments (regions) of Guatemala that have the highest incidences of household food insecurity.
2) As an extension service, SNEA complements ICTA by providing an interface between the generation of improved agricultural technologies (e.g., improved bean varieties) and communities of small-holder farmers in target geographic regions.
3) ICTA and SNEA have received strong encouragement from top administrators within the Ministry of Agriculture to collaborate in reaching SNEA‟s major objectives. The BTD project is considered to be one of the first opportunities to bring these two organizations together to work toward a common goal. A Memorandum of Understanding has been prepared and signed between the Management Office of the Dry Grain Pulses CRSP, ICTA, SNEA and FUNDIT (Attachment 1), giving evidence of institutional commitment to cooperation and collaboration in the BTD project.

[1] Ing. is the abbreviation for "Agricultural Engineer"

Fundación para la Innovación Tecnológica, Agropecuaria y Forestal (FUNDIT)

FUNDIT is the principal subcontractor for the BTD project in Guatemala. FUNDIT is a private foundation established to manage external donor-funded projects within ICTA and other entities within the Ministry of Agriculture for the purpose of ensuring financial and technical integrity and effective implementation of projects. FUNDIT will subcontract and work closely with ICTA and SNEA personnel to ensure that activities are carried out in accord with annually developed Scopes of Work and that approved, budgeted funds are spent accordingly. FUNDIT will also monitor and promote communication between ICTA and SNEA staff so as to achieve effective coordination and implementation of all activities as well as the target dissemination goals of the BTD project in Guatemala. FUNDIT will also be responsible for the reporting of technical progress, the achievement of specific mutually agreed-upon deliverables and for invoicing MSU so that project execution expenses by ICTA and SNEA are received in a timely manner.

MSU selected FUNDIT as its sole subcontractor in Guatemala for the following reasons:

1) MSU had a positive experience with previous subcontracted research projects with FUNDIT through the Bean/Cowpea CRSP.
2) FUNDIT has effectively administered funds from other donors supporting ICTA projects.
3) ICTA and SNEA public-sector administration lacked the dexterity to financially manage and monitor ongoing project performance, tasks which FUNDIT specializes in.

HONDURAS

Escuela Agrícola Panamericana (EAP- Zamorano)

The EAP-Zamorano assumes a strategic technical leadership role for the BTD project in the region as well as within Honduras. For nearly 30 years, the Bean/Cowpea and Dry Grain Pulses CRSPs have partnered with and supported the *Programa de Frijol* (Bean Program) at Zamorano, led by Dr. Juan Carlos Rosas. As a result of the CRSP‟s investments in the genetic improvement of small red and black bean market types, improved varieties are presently registered in all the Central American countries and Haiti for commercial production. It is these "CRSP" varieties that need to be promoted and made accessible to resource-poor small-holder bean farmers in the region to enhance both productivity and national production of beans. The genetic potential of these bean varieties are also the basis for the justification of funding for this project.

Dr. Rosas is serving as the lead PI[2] for Zamorano‟s component of the BTD. He is responsible both for the production of "foundation" or "basic" seed of the desired varieties to be distributed to the National Programs in each of the participant countries for the production of "registered" seed. In addition, EAP/Zamorano is responsible for the coordination, planning and implementation of bean seed multiplication and dissemination

[2] PI stands for Principal Investigator

activities in certain regions of Honduras where it historically has actively collaborated with farmer organizations and NGOs. Project staff at Zamorano will also be responsible for performance monitoring of all activities in Honduras, including those of DICTA, and reporting to MSU. To this end, EAP-Zamorano will establish sub-contracts) with the NGOs "Programa de Reconstrucción Rural" (PRR) and the "Fundacion para la Investigacion Participativa con Agricultores en Honduras" (FIPAH).

Dirección de Ciencia y Tecnología Agropecuaria (DICTA)

DICTA is within the Secretaria de Agricultura y Ganaderia in Honduras and has a national government mandate to generate and transfer technologies that will support and increase production and agricultural productivity. MSU had decided to establish a direct subcontract with DICTA to work in the West and Olancho departments (states) of Honduras. Originally, the plan was to request EAP-Zamorano to subcontract DICTA. However, indirect cost rates (IDC) charged by EAP-Zamorano to pass through funds to DICTA were so high that it would have been a cost-inefficient arrangement. DICTA, on the other hand, charges no IDC to donor fund management. Moreover, DICTA desired to establish direct ties with Michigan State University both for the BTD project and possibly for institutional capacity building activities through the Pulse CRSP. DICTA has demonstrated that they have sufficient capacity to manage externally-funded projects and an excellent record of financial management as evidenced by a FY2009 Audit Report. MSU anticipates they will succeed in achieving their goals in a timely, transparent and effective manner. Additionally, EAP/Zamorano, as the lead institution for the Honduras project, will play a coordinating role in planning and implementation of DICTA activities, which adds a level of verification and trust to BTD project activities in Honduras.

NICARAGUA

Instituto Nicaragüense de Tecnología Agropecuaria (INTA)

The *Instituto Nicaragüense de Tecnología Agropecuaria* (INTA) is the national authority within Nicaragua for both agricultural research and for providing technical assistance to communities of farmers. It is a national, semi-autonomous institution with many years of experience. Ing. Aurelio Llano heads the *Programa de Frijol* in INTA and has been a long-term collaborator in the Central American Bean Research Network supported by the Dry Grain Pulses CRSP through EAP-Zamorano. For administrative purposes, INTA has established five regional offices within the country that operate with a high level of inter-dependency in order to customize technical assistance to the different needs and microclimates throughout country. INTA shares the BTD project vision to provide access for resource-poor, small-holder farmers to high quality bean seed of improved bean seed varieties to increase yields, to produce high quality grain demanded by domestic markets, and to increase their income so as to improve their quality of life. As a result, INTA has made the bean seed dissemination project a national programmatic priority and is providing major in-kind contributions to support the promotion of the *Bancos Locales para la Producción de Semilla* (BLPS) in a total of 200 communities in Nicaragua (40 BLPS per region).

HAITI

University of Puerto Rico (UPR)

UPR-Mayagüez has been a strong institutional partner with the Dry Grain Pulses CRSP tor for many years in the generation and release of improved bean varieties for the low-land tropics characterized by high temperatures and rainfall. UPR has partnered with the EAP-Zamorano Honduras and the National Seed Service within the Haitian Ministry of Agriculture in Haiti. Varietal releases of beans from the UPR Bean Genetic Improvement Program are being produced in the Caribbean (e.g., Dominican Republic and Haiti) and Central American regions. Dr. James Beaver has cultivated strong professional ties with Dr. Emmanuel Prophete with the Haiti National Seed Service (NSS) both through joint project work and through short and long-term training of Haitian professionals and students. Because of Dr. Beaver‟s long –term experience and expertise on bean production in the region, he works closely with the Project Manager, Dr. Luis Flores, in a technical advisory capacity. For these reasons, the UPR played an important role in conceptualizing the BTD project including the preparation of the Technical Application submitted to USAID. Additionally, Dr. Consuelo Estevez brings significant expertise on the production and use of *Rhizobium* inoculants to enhance nodulation and biological nitrogen fixation in bean production systems. Dr. Estevez will be focusing her work on the validation of appropriate *Rhizobium* strains for the diverse agro-ecological areas in Haiti and the training of technicians on the production of inoculants.

Inter-American Institute for Cooperation on Agriculture (IICA)

IICA‟s long term presence in Haiti has allowed it to cultivate close relationships with several offices of the Government of Haiti, particularly with the National Seed Service (NSS) in seed production programs. IICA‟s involvement in administration of ProFrijol, a CIAT-led regional bean network and other seed projects financed by the Canadian and Argentinian governments motivated the BTD team to select IICA as a partner to provide leadership for project activities in Haiti. Dr. Flores‟ long term professional relationship with the institution‟s leader, Mr. Alfredo Mena, also played an important role in choosing this partner. The following reasons had particular weight in motivating the choice of IICA as the leading partner in Haiti;

1) IICA and NSS share a long history of collaboration in seed-related projects.
2) IICA has the institutional stature within Haiti to oversee and monitor the implementation of BTD project activities of the NSS, and of private sector partners and NGOs.
3) Given the current state of affairs in post-earthquake Haiti, a partner with a historically strong and respected presence in country was considered essential to anchor the project and provide a meeting point for our partners.
4) IICA‟s international institutional reputation and 10% IDC rate were attractive to MSU for contractual purposes.

National Seed Service (NSS)

As a long-term institutional partner in the Bean/Cowpea and the Dry Grain Pulses CRSP, National Seed Service within the Ministry of Agriculture in Haiti has a governmental mandate for the testing, certification, procurement and dissemination of improved seed varieties of staple crops including beans. Dr. Emmanuel Prophete, the Director of NSS and the project‟s PI, is highly praised as the institutional memory of past seed system development initiatives. In a country ridden by emergencies, counting on the expertise, government and private sector contacts of Dr. Prophete has been a plus. NSS will be responsible for ensuring that protocols for the production of "quality-declared" seed are followed in accord with national seed production laws and regulations.

Agrotechnique

This is a private sector partner with 93 outlets distributing agricultural inputs throughout the country. Agrotechnique has agreed to produce quality-declared seed and to distribute it through its network of stores and agriculture depots. While the BTD project will not compensate Agrotechnique for the production and dissemination of seed, the working arrangement includes covering the cost of bags, labels branding the product with the project information, training and promotion of the CRSP bean varieties and *the Rhizobium* inoculum disseminated through its stores. For clarification purposes, the project will not pass funds on to Agrotechnique, directly or indirectly, for its execution. Expenses associated with the BTD project collaboration with this private sector partner will be managed by IICA.

3. RESULTS OF THE FIRST REGIONAL MEETING

A regional project planning meeting was held in Guatemala City from November 29 through December 3 of 2010 with the objective of initiating talks around the project‟s vision and goals, the division of roles and responsibilities among the participating institutions, the preparation of workplans, budgets, and the identification of urgent activities to be initiated during the first six months of the project. Participants from MSU and each partner organization shared their views on the BTD project‟s goals, strategies to implement sustainable seed systems, and the challenges that anticipated in producing registered and quality-declared seed to meet dissemination targets (120,000 farmers over three years) within the budgetary limitations established for the project. This meeting marked the beginning of partner interactions towards scheduling key field activities following the agricultural cycles of every country. Important decisions were taken in this meeting as outlined below:

BTD Management

a) The MSU team presented the overall objectives of the project with particular emphasis on initiating field activities on seed multiplication as soon as possible so that the goals for Year 1 could be met.

b) Dr. Mywish Maredia presented the monitoring and evaluation plan for the project and her thoughts on its implantation within each country. The plan basically outlined how MSU prefers the information be gathered so as to establish a clear baseline and to obtain sufficient quality data that would permit assessment of results and impact with a high degree of confidence and in a cost-effective manner.
c) Sustainability issues with the bean seed systems in the region and other parts of the world were discussed in order to determine how the BTD project could be different and more effective than past initiatives.
d) Ideas for branding the BTD bean technology package (quality seed and *Rhizobium)* to be disseminated were also discussed.

GUATEMALA

It was agreed that ICTA would establish a verbal contract with producers in the Department of Peten to produce 27metric tons (MT) of quality declared seed of "ICTA Ligero" and 27MT of "ICTA Peten". Both varieties are known for their good performance in the dry, low land areas of Guatemala highly affected by seed scarcity, drought, and thus food insecurity. The 55 hundred-weight sacs of "registered" ICTA Peten and ICTA Ligero seed, provided to farmers for seed multiplication, came from ICTA"s seed reserves. Two growers selected from the Peten agreed to multiply the seed and plant 80 manzanas[3] (approximately 57 hectares) in early January 2011.

HONDURAS

The Bean Program of EAP/ZAmorano agreed to produce the foundation or basic seed stocks in Honduras of the desired improved CRSP bean varieties requested by each of the countries. The other partners would assume responsibility for the production of the "registered" seed required to meet dissemination goals in their respective countries. Zamorano also agreed to work in close collaboration with DICTA but allow DICTA to establish its own subcontract directly with MSU. The Pulse CRSP Management Office expressed its gratitude to Zamorano for its willingness to initiate critical activities with only a verbal commitment of support.

NICARAGUA

INTA presented a comprehensive plan to reach the project goals working with 200 Bancos Locales para la Producción de Semilla (BLPS) in the five regions of Nicaragua. It is noteworthy that the meeting attendees learned a great deal from the Nicaragua experience with local seed banks as a sustainable system to achieve access by resource-poor farmers to high-quality seed. INTA also agreed to initiate the production of "registered" so that it could be made available to INTA Regional Offices for distributed to the BLPS in May 2011. At the preparation of this report, the BTD project management has received confirmation that registered seed had been successfully produced by the Unidad de Semilla of INTA (UNISEM).

[3] One manzana is equal to 0.7Ha or 7,020 square meters

HAITI

During the regional meeting IICA was introduced as the "lead" institution which will collaborate with NSS to implement project activities in Haiti. A decision was also reached to source 5 MT of registered seed of the "DPC-40" variety from the Dominican Republic to initiate multiplication activities with several partners, but mainly by the Organization for the Rehabilitation of the Environment (ORE) in Camp Perrin, located in the western province of Les Cayes. High costs associated with ORE"s production systems under irrigation impeded the continuation of those plans. As a result, production took place only in NSS-owned fields until late April in Savane Zombi, located in Haiti"s Massif Central.

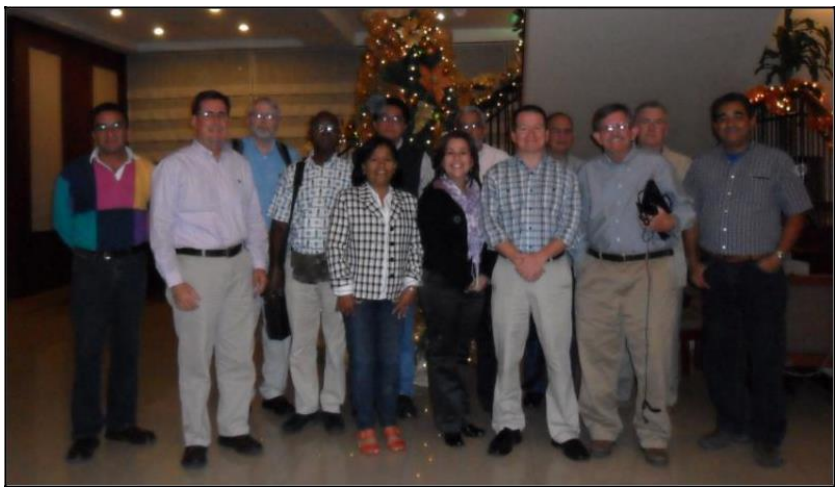


Figure 1. Group of attendees to the BTD Regional Meeting in Guatemala City from Nov 27-Dec 3, 2010. From left to right: Ing. Julio Cesar Villatoro (ICTA); Dr. Irvin Widders (MSU); Dr. Richard Bernsten (MSU); Dr. Emmanuel Prophete (NSS); Dr. Consuelo Estevez (UPR); Dr. Juan Carlos Rosas (EAP/Zamorano); Trini Azurdia (hired translator); Mr. Alfredo Mena (IICA); Dr. Luis Flores (MSU); Ing. Aurelio Llano (INTA); Dr. James Beaver (UPR); Dr. James Kelly (MSU); and Ing. Narcizo Meza (DICTA).

4. PROGRAMMATIC ACTIVITIES

The following summary outlines the major programmatic activities completed during the past few months.

GUATEMALA

a) ICTA provided 60cwt of registered seed, 50% ICTA Peten, and 50% ICTA Ligero
b) Fifty-seven Ha (50% ICTA Peten and 50% Icta Ligero) were planted in the Peten for an expected production of 54MT of quality-declared seed.
c) Multiplied seed is harvested and transported to the ICTA warehouses in Guatemala for packaging into 20-pound bags.

Figure 2. Seed multiplication of ICTA Peten and ICTA Ligero in the Peten, Guatemala

Figure 3. Ing. Julio Villatoro of ICTA and Dr. Luis Flores of MSU at ICTA‟s warehouse.

d) Seed bagging and labeling is being planned. A label with the project‟s logotype will be printed and placed on the bags of seed distributed to farmers.

Figure 4. Draft label design to be placed on 20-lb bean seed bags

e) The seed dissemination will be conducted as a team effort with the Systema Nacional de Extension Agricola (SNEA) in the departments of Jalapa, Jutiapa, Chiquimula and Santa Rosa. The seed will be ready for the "*postrera*" planting season (also known as "segunda" in Guatemala which is the most important growing season in these departments.

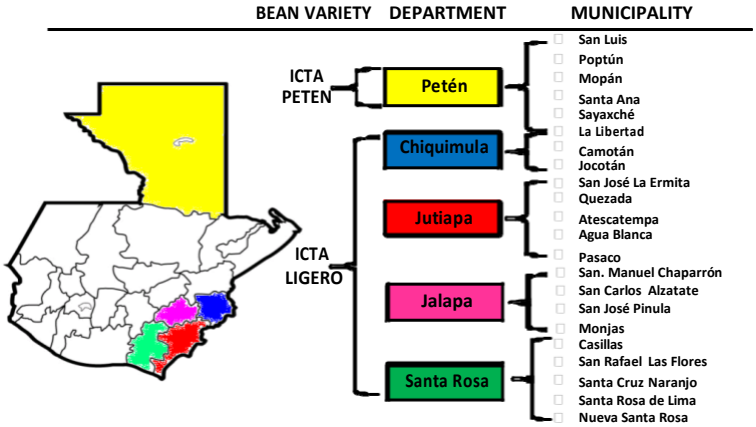
f) The dissemination in the northern department of Peten is scheduled to start October 2011 since this marks the beginning of the most important planting season in the area.

g) ICTA and SNEA are working together to coordinate the delivery of the seed in each of the target departments utilizing staff in their extension offices in key municipalities. The preliminary list of municipalities is described in Figure 5.

h) ICTA and SNEA are planning three training workshops for technicians and extension agents. The first will take place on June 29 for the extension agents of Chiquimula and Jalapa. Another training workshop will be held on July 1 for the extension agents of Jutiapa and Santa Rosa. The third training event will take place from July 5-7 in Peten. The course content will include best practices in bean seed production, the importance of teaching farmers the skills to preserve the quality of the seed, and sustainable approaches to community-based seed production (sharing the Nicaragua model).

i) A visit to Nicaragua"s local seed banks is also planned for the second week of July. During this trip, extension agents and personnel from ICTA and SNEA will visit their INTA counterparts to learn about their experience in promoting and providing technical assistance to local seed banks. The Nicaraguan model is considered the most sustainable approach to the bean seed availability challenge in Guatemala.

Figure 5. Guatemala Bean Dissemination Departments and Municipalities



HONDURAS

Nearly five metric tons of foundation seed was produced at Zamorano during the *postrera* (Oct-Dec, 2010) and the irrigated (Feb-Apr, 2011) seasons. Genetic seed stocks of small red and small black improved varieties developed under the Bean/Cowpea CRSP and Dry Grain Pulses CRSP projects, and tended by Zamorano´s Bean Research Program, was regenerated and used to reproduce the foundation seed. This foundation seed was distributed to institutions and organizations collaborating with the BTD Project in Honduras, Guatemala, Nicaragua and Haiti (Table 1).

Table 1. Foundation Seed of Bean Improved Varieties Distributed to Collaborators

Country (collaborator)	Small red varieties		Small black varieties	
	Quantity (ton)	# Varieties	Quantity (ton)	# Varieties
Honduras:				
DICTA	1.4	5		
PRR	1.3	10		
FIPAH	1.5	10		
ASOCIOGUARE	0.7	1		
Nicaragua (INTA)	0.9	2	0.3	1
Guatemala (ICTA)			0.7	4
Haiti (PNS)	0.02	1	0.14	4

a) More than 8 tons of qualified seed[4] was produced in farmer fields in collaboration with PRR, FIPAH and ASOCIOGUARE in the Yojoa Lake, Yorito-Vallecillo and Yeguare regions, during the irrigated season (Feb-Apr 2011). This qualified seed was distributed to small

[4] Qualified seed is the English translation for "semilla calificada", the term used in the Honduran Seed Law.

farmers from the mentioned regions (see Table 2). During the month of May, more than 45Ha of qualified seed were cultivated during the *primera*[5] planting season.

Table 2. Qualified Seed Of Bean Improved Varieties Distributed to Beneficiaries (May 2011) and Expected to be Distributed (September 2011) in Honduras.

Season	Yojoa Lake	Yorito/Vallecillo	Yeguare/Paraíso	Total
Primera (May 2011)	150	500	250	900
Postrera (Sep. 2011)*	2000	2000	1200	5200
Total FY1*	2150	2500	1450	6100

*Expected by the end of FY1.

b) Nine-hundred beneficiaries received qualified seed of small red improved varieties for the *primera* planting (May-June 2011) produced during the irrigated season (Feb-Apr 2011). According to the area planted and the production of qualified seed expected from the *primera* planting season, at least 5200 beneficiaries will be reached with packages of qualified seed in September 2011. This seed will be used on their *postrera* planting (Oct-Dec 2011).

c) On *Rhizobium*-related activities, on-farm demonstrations of seed inoculation at planting were carried out in the Yohoa Lake area in May. Also, a mini course on Bean *Rhizobium* Technology was offered to technicians and farmers of Zamorano in early June in preparation for project activities.

d) DICTA has identified eight seed producer groups, three in Olancho and five in the Western region. Seed production contracts are under discussion.

NICARAGUA

a) Most of the registered seed has been produced by INTA and part of the seed has been obtained from EAP/Zamorano.

b) INTA has distributed registered seed to most of the BLPs, although planting has not started due to the irregular rainy season. Figure 6 shows the mock-up version of the seed label.

c) New BLPs are being formed to reach the 200 BLPs goal, or 40 per each of the five regions.

d) Purchase orders for seed production inputs have been requested and the transportation of registered seed to each region has been organized. A mock up version of the seed labeled is shown in Figure 6.

e) The organization of the BLPS in every region is being carried out by each regional office and planting will begin in June as soon as the rainy season is well established.

HAITI

a) Dr. Consuelo Estevez and Dr. James Beaver traveled to Port au Prince to discuss the collaboration with Dr. Jean Fenel Felix and Dr. Antoine Wesner of the State University of Haiti. Dr. Felix has extensive experience on *Rhizobium* production and counts on most of the

[5] There three possible bean planting seasons in an agricultural year in Central America: Primera (first), Postrera (second) and Apante (third). Only Nicaragua has documented to have a significant Apante planting season in the region.

laboratory equipment needed. The laboratory has been largely affected by the earthquake, but both Drs. Estevez and Beaver believe that with the provision of supplies and the missing equipment Dr. the laboratory can run again and reproduce the Rhizobium strains the project needs. Figure 7 shows Dr. Estevez visiting with Drs. Felix at Wesner at the recent visit to Haiti.

Figure 6. Mock-up version of label for a 20-lb package of quality declared seed.

b) Dr. Beaver has provided a series of materials for the NSS research program. These include:
   i. Approximately 5 kg of PR0737-1. This red mottled bean line has resistance to BGYMV, BCMNV, BCMV and powdery mildew. This was also the highest yielding Andean line in the BNF trial conducted at the Isabela Substation.
   ii. A group of yellow beans that were selected for resistance to BGYMV, BCMV and common bacterial blight resistance.
   iii. A snap bean line with resistance to BGYMV and BCMV.
   iv. The collection of Lima bean landrace varieties from Puerto Rico, the Dominican Republic and Haiti.
   v. Photoperiod insensitive Lima bean and pigeonpea varieties.
   vi. A collection of cowpea landrace varieties from UC, Riverside, IITA, Western Africa and Angola.
   vii. A group of black and white-seeded bean breeding lines (disease resistance, tolerance to low soil fertility and bruchid resistance).
   viii. Tepary bean lines from Dr. Tim Porch.

c) Ten hectares of DPC-40 are being produced by NSS to generate 5 MT of quality-declared seed for dissemination. The field is located in Savane Zombi at 1440 meters above sea level.

Drs. Beaver, Prophete and Estevez confirmed the status of the crop finding minor infestations of rust, but in general with good phonological development. Provided the weather cooperates, the harvest is scheduled for mid-July 2011. Figure 7 shows some pictures of the Savane Zombi plantation.

d) IICA has proceeded with the selection of a project leader who will be in charge of following up with NSS and Agrotechnique on the production and dissemination activities.
e) The Monitoring and evaluation formats for Haiti are being revised and will be sent to Rachelle Cherry, IICA‟s monitoring and evaluation specialist.

Figure 7. Dr. Estevez visiting with Drs. Felix at Wesner at the recent visit to Haiti.

Figure 8. Seed-increase fields of the black bean „DPC-40‟ at Savane Zombi, Haiti

5. MONITORING AND EVALUATION

The program monitoring plan (PMP) has been developed and is under final revision and translation to Spanish. The PMP is divided in five PMP components:

PMP FORM 1: Information on New Varieties, Quantity of seeds produced and Organizations involved

PMP FORM 2: Information on Seed Bags Distributed to Farmers
PMP FORM 3: Information on Inoculants Produced and Distributed to Farmers
PMP FORM 4: Information on Metal Silos and their Evaluation
PMP FORM 5: Information on Training and Capacity Building

Partners are being provided opportunity to review and propose changes so that forms are appropriate for and can be adaptable to each country context. Collection of monitoring and evaluation data will start in July 2011.

6. LESSONS LEARNED

Working with public sector partners

Public sector institutions in the target countries are often characterized by inadequate administrative capacity, funding shortages from public sources and are frequently led by professionals in an uncertain job security environment. Despite these challenges, the BTD project has been extremely fortunate to obtain strong institutional commitments and to identify highly competent and dedicated individuals who have championed this initiative. These Host Country project leaders have patiently worked with the Management Office to prepare quality SOWs with sufficient detail to hold them accountable for achievement of deliverables. We are confident that it is possible to effectively and successfully work with National Agriculture Programs to achieve development goals under Feed the Future. An outcome of the institutional partnerships being cultivated through this project will certainly enhance the capacities of the partner public sector entities. The project is particularly grateful to ICTA, INTA, NSS and DICTA whose response to the program has been commendable even prior to the final negotiation and signing of subcontracts with MSU. In addition, we thank these national programs for their commitment of in-kind contributions (staff time and the use of facilities) in support of this project.

Difficulties experienced to start up the project include: language barriers (key documents must be in both English and Spanish); cumbersome administrative requirements and processes for obtaining authorizations and signatures on subcontracts; the need to review and obtain approval of documents (SOWs and budgets) from multiple parties before achieving a “final”; expediting the completion of subcontracts when contract staff are either on vacation or offices are closed for holidays, etc. All these factors have contributed to substantial delays in completing subcontracts with partner institutions. Despite these difficulties, our experience has been quite positive and we continue building administrative and technical capacity in public sector offices.

Quantifying results in the four countries

The BTD Management Office has come to realize that working in four countries demands a customized approach to monitoring and evaluation of results. The mix of diverse agricultural cycles for both the *primera* and *postrera* and–in the case of Nicaragua–apante planting seasons and the array of institutional partners each with their unique institutional programmatic and administrative peculiarities has made it difficult to conceive a single uniform monitoring and

evaluation system that fits all cases. To allow for variations in data reporting approaches and requirements, Dr. Maredia and the MO have been interacting with Host Country PIs to obtain their concurrence on formats for data collection forms and coordination of data collection and reporting activities for each country. The final formats and PMP will be shared with USAID in the annual progress report for Year 1.

Immediate challenges ahead

The support provided by the partner organizations in Honduras, Nicaragua, Guatemala and Haiti to carry out field activities in the absence of contracts and funds-in-hand has unquestionably been the most important factor that has contributed to a most successful start of BTD project. The Management Office however recognizes that Year 1 SOWs, budgets and subcontracts were prepared in haste due to the desire to implement the project and not experience delays in achieving dissemination goals. As a result, technical, administrative and contractual staff were placed under pressure and asked to make personal sacrifices to complete subcontract documents and to make certain decisions based upon trust. To avoid such challenges in the future and to ensure adequate time for planning and budget preparation, the MO will be requesting that partners begin preparations of Year 2 SOWs and budgets in July 2011.

7) ANNEX

a) Summary of MO and Sub-Contracted Funds

	USA		Honduras		Nicaragua		Guatemala		Haiti		
	MSU	**UPR**	**Zamorano**	**DICTA**	**INTA**	**TBD**	**ICTA**	**NSEA**	**IICA**	**NSS**	**Total**
Original budget	$757,037	$308,069	$784,200	$0	$376,200	$103,500	$376,200	$103,500	$360,000	$223,200	$3,391,906
Revised budget	$757,037	$126,875	$594,310	$189,600	$478,426	$0	$375,320	$102,902	$422,068	$72,890	$3,119,428
Institutional Variance	**$0**	**$181,194**	**$189,890**	**($189,600)**	**($102,226)**	**$103,500**	**$880**	**$598**	**($62,068)**	**$150,310**	**$272,478**
Country Variance	**$0**	**$181,194**	**$290**		**$1,274**		**$1,478**		**$88,242**		**$272,478**

The above table summarizes the distribution of the projected institutional funding levels for the three years (2010-2013) against the budgeted amounts in the original Cost Application, thus the "variance". When the Technical and Cost Applications were submitted and the Associate Award made to MSU, numerous Host Country partner institutions had not been identified. Over the past eight months, as participant institutions were selected, their respective roles determined, and Scopes of Work and Budgets negotiated, it became apparent that institutional tasks and corresponding budgets within this regional project would need to change. Throughout this process, however, the MO always sought to focus on achieving the target dissemination goals as well as to maintain the original funding levels for each country to the extent possible.

The following explanation details some of the changes that have been made in the budgets for the subcontracted Host Country institutions in Honduras, Nicaragua, Guatemala and Haiti.

1. The Management Office budget has not been modified for the three-year project.
2. In Haiti (UPR, NSS and IICA)-
   - Project activities originally planned to be undertaken by the University of Puerto Rico for achievement of objectives in Haiti, have been transferred to institutions in Haiti. Thus, UPR"s SOW and Budget are significantly reduced (by $186,194).
   - The funds made available through the modification of the UPR budget will likely be allocated for project activities in Haiti. Due to the challenges and complexities of implementing projects in Haiti, the MO has not made a decision at the present time on how these funds might be spent.
   - IICA was identified as a necessary partner in the field to coordinate NSS and Agrotechnique activities as well as to manage funding for seed dissemination, *Rhizobium* production and training activities.

     The total allocation to NSS was reduced in order to increase the allocation to IICA since it is expected IICA will execute funding faster than the public sector in Haiti given the current situation with project emergencies after the earthquake.

3. In Honduras (EAP-Zamorano and DICTA)-
   - The annual budgets for EAP-Zamorano for each of the three years were reduced to allow for financial support for DICTA ($63,200 per year). DICTA is assuming responsibility for seed dissemination and technical assistance in regions of Honduras that are beyond the reach of Zamorano.

4. In Nicaragua (INTA)
   - INTA is the sole subcontracted institution in Nicaragua, assuming responsibility for all technical aspects of the project including the production of registered seed, technical assistance to community seed banks for local multiplication of seed and for dissemination to resource poor farmers. Thus, there was no need to contract a TBD entity to coordinate dissemination activities in Nicaragua.

5. In Guatemala (FUNDIT-ICTA and FUNDIT-SNEA)
   - Note that FUNDIT is the subcontracted entity by MSU. FUNDIT will only be managing project funds and subcontracting ICTA and SNEA within the Ministry of Agriculture. FUNDIT ensures integrity and accountability in financial and technical management.
   - The allocations of funding for ICTA and SNEA are close to original budget.

b) Partners‟ Scopes of Work

GUATEMALA

FUNDIT SOW: ICTA

Strategic Investment in Rapid Technology Dissemination: Commercialization of Disease Resistant Bean Varieties in Guatemala, Nicaragua, Honduras and Haiti.

(Associate Award to the Dry Grain Pulses CRSP)

SCOPE OF WORK FOR ICTA
October 1, 2010 – September 28, 2013

Organization to be Sub-Contracted:

Fundación para la Innovación Tecnológica, Agropecuaria y Forestal (FUNDIT)
18 Avenida "A" 1-40 Residenciales Alamedas de Santa Clara, Sector Las Margaritas Zona 3, Villanueva
Project Leader: José Angel Dávila Estrada, Director FUNDIT. 18 Avenida "A" 1-40 Residenciales

Alamedas de Santa Clara, Sector Las Margaritas Zona 3, Villanueva (502) 50384289, jade0210@gmail.com

Administrative/Financial Officer for Organization: Deisy Mazariegos 18 Avenida "A" 1-40 Residenciales Alamedas de Santa Clara, Sector Las Margaritas Zona 3, (502) 5038 4289 Villanueva. deisy_mazariegos_fundit@hotmail.com mailto:

Collaborating Host Country Organizations:
Instituto de Ciencia y Tecnología Agricola (ICTA), Ing. Julio Cesar Villatoro. Km 21.5 Carretera hacia Amatitlan, Bárcena Villa Nueva, Guatemala. (502) 54179200. juliocevillatoro@hotmail.com,

Dirección de Coordinación Regional y Extensión Rural, Sub Dirección de Extensión Agricola. Ing. Pedro Antonio Rosado Pol. 12 Av. 19-01 Zona 1. Guatemala, Ciudad. 2221 1309. prosado@yahoo.com.mx

I. Constraint Statement with Justification:

A significant number of improved bean varieties with higher yield potential and tolerance to biotic (diseases and pests) and abiotic (adaptation to poor soils, heat and drought) stresses than traditional varieties, are currently available in Honduras and have been registered for commercial planting in Guatemala (ICTA Ligero and ICTA Zam). These improved varieties however are not readily accessible to the majority of small bean producers, due to the low availability of quality seed of improved varieties locally at an affordable price. The strengthening of local and formal seed systems, through the integration of key actors (public and private institutions to generate and transfer of agricultural technologies, farmer organizations and private companies) for the sustainable production of quality seeds would facilitate enhance seed availability and dissemination of improved varieties in underserved regions of the country.

On the other hand, bean production by small-holder bean farmers in Guatemala is frequently carried out under sub-optimal conditions in low fertility soils needed for good crop development and productivity. The technologies of inoculation with *Rhizobium* and the use of organic fertilizers produced locally, would improve soil tilth and nitrogen status of the crop and increase bean productivity, thus enhancing the benefits derived from planting improved varieties.

II. Project Objectives:

Objective 1. To develop sustainable national capacities in Guatemala for the production and distribution of quality seed of improved varieties of beans developed through investments in research by the Dry Grain Pulses CRSP for the benefit of small holder farmers in target areas of the country to increase national productivity.

Objective 2. To develop national capacities for the production and use of *Rhizobium* inoculants on beans to enhance the sustainability of cropping systems and bean productivity in low fertility fields.

Objective 3. To develop and implement a sustainable bean seed production and distribution system in Guatemala so as to ensure access by small-holder resource-poor farmers to quality seed with high productivity potential.

Objective 4. To monitor and evaluate the dissemination and adoption of improved varieties of bean seed and *Rhizobium* inoculants and their contributions to national food and nutritional security.

III. Planned Activities in this Scope of Work:

In Guatemala, the Institute of Agricultural Science and Technology (ICTA) has been recognized for its role in the introduction, testing and registration of improved varieties of beans for commercial production by farmers. ICTA is therefore an important partner in producing quality-declared seed for the BTD project‟s dissemination of improved seed varieties, producing *Rhizobium* inoculum and training farmers on improved seed storage techniques. These activities constitute the technological package promoted by the BTD project under USAID‟s Feed the Future initiative for Guatemala, Honduras, Nicaragua and Haiti.

As ICTA carries out this duty, a close cooperation with the Directorate of Agricultural Extension (SEA) will complement the project activities by facilitating the dissemination of the quality-declared seed to resource-poor farmers in the target departments or regions. The SEA has a network of young extension agents and leading farmers throughout the country. The SEA is willing to play the role of the interface between the technology package and the target farmers providing access to the improved seed, *Rhizobium* inoculum and training on the use of this technology to increase bean productivity on low fertility soils.

Michigan State University is the Management Entity for this project and will establish a Fixed Price Contract with FUNDIT. Under this working scenario, the role of FUNDIT is be the principle subcontractor for BTD project activities in Guatemala and to effectively manage the funds, distributing them to ICTA and other partners (e.g., SEA) to ensure project integrity and effective overall implementation of the project. FUNDIT will work closely with ICTA and SEA personnel to ensure that activities are carried out in accord with annually developed Scopes of Work and funds spent according to approved Budgets. It is also important that FUNDIT monitors and encourages communication between ICTA and SEA staff so as to ensure coordination and effectiveness of all activities as well as the overall success of the BTD project in Guatemala. FUNDIT will also be responsible for the reporting of technical progress, the achievement of specific mutually agreed-upon deliverables and of invoicing so that payments are received by ICTA and SEA in a timely manner.

A. Project Activities in Year 1 (March 1, 2010 – September 30, 2011):

Objective 1: Production of quality-declared seed. This category is equivalent to certified seed in the formal system, but due to the need to streamline the process, the production of qualified seed will not follow the formal certification process strictly. The following activities will be undertaken:

a) FUNDIT will work with ICTA to verify that production lots will be supervised and the recommended visits by technicians from ICTA will be carried out.

b) FUNDIT will not provide any inputs to the seed producers, but will make arrangements to purchase at a negotiated rate $1375 per metric ton at the farm gate. A total of 54 tons will be purchased this year from the Peten area due to its soils‟ residual humidity during the dry season in Guatemala. Two varieties will be purchased, 27 tons of the variety ICTA LIGERO and 27MT of ICTA PETEN.

c) FUNDIT will coordinate with ICTA the transportation of the seed from Peten to the ICTA warehouses where the seed will be stored under recommended conditions until it is ready for further activities.

d) FUNDIT will coordinate with ICTA for the purchase of services and suppliers to pack 10-lb bags of quality-declared seed to be disseminated by SEA. The 54 tons of bean seed purchased and packaged in Year 1 will be sufficient to distribute 10 lb. bags of improved varieties to a minimum of 5,000 small-holder bean farmers in selected target regions of Guatemala.

Objective 2. Training of extension agents in seed production, post-harvest management, agronomic crop management practices and the use of *Rhizobium.*

a) FUNDIT will coordinate with ICTA technicians the organization and delivery of training programs to SAE extension agents on central topics such as seed production, crop management and seed preparation.
b) Training on *Rhizobium* technology will be imparted to at least 120 extension agents and leading farmers in two or three different training locations.

Objective 3. To develop and implement a sustainable bean seed production and distribution system with local farmer/stakeholder ownership in Guatemala so as to ensure access by small-holder resource-poor farmers to quality seed with high productivity potential.

To achieve this objective, ICTA will build upon its years of experience in the introduction, testing, certification and multiplication of bean seed, as well as its linkages with other National Agriculture Research Systems in Central America and NGOs to design and implement an appropriate and sustainable seed production and multiplication system for beans in Guatemala. Such a system is necessary to ensure the food security of the country and to enhance the national production of dry beans by small holder farmers long-term. Consideration should be given to designing a seed system that is appropriate for the Guatemalan context and thus sustainable, and that defines roles and incentives for essential public and privates sector players (organizations, institutions) to produce foundation seed of improved varieties with high yield potential, to multiply and produce quality-declared seed that is certified, to store and handle the seed in a manner that retains its vigor and

germination potential, and to make accessible the high quality seed to small-holder farmers at affordable prices.
During Year 1, IITA staff will assume the leadership for organizing meetings with strategic partners to discuss and plan a design and strategy to implement a sustainable seed system for dry bean in Guatemala during Years 2 and 3 of the project, as the BTD project budget is not sufficient to allow for the contracting and purchase of multiplied seed from commercial bean growers each year.

Objective 4. Baseline data collection from beneficiaries, monitoring of project activities and performance evaluation of achievement of production and dissemination objectives for the Year 1.

In the first year, data will be collected to establish the baseline at the start of the project gathering information during seed production and distribution to beneficiaries, using the formats and following the recommendations of the MO developed by Dr. Mywish Maredia. EAP/Zamorano will collect information to support the partners in each region, which will require the hiring of a qualified and experienced staff member from ICTA as identified in the budget.

B. Year 2 (October 1, 2011 - September 30, 2012):

A Scope of Work for activities to be conducted by ICTA during Year 2 will be developed prior to September 30, 2011. Decisions of future activities and budget will be influenced by technical progress by ICTA and other partners (e.g., SEA) toward achievement of ultimate project production and technology dissemination goals during Year 1 of the project in Guatemala.

C. Year 3 (October 1, 2012 – September 28, 2013):

A Scope of Work for activities to be conducted by ICTA during Year 3 will be developed prior to September 30, 2012. Decisions of future activities and budget will be influenced by technical progress by ICTA and other partners toward achievement of ultimate project goals during Year 2 of the project in Guatemala.

IV. Implementation Timeline for Year 1:

	MONTH						
ACTIVITY	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**
Objective 1: Seed Production							
Seed field supervision	x	x					
Seed purchase	x	x	x				
Seed transportation and storage		x	x				
Objective 2: Training							
Training of SAE extension agents		x	x	x	x	x	
Objective 3: Design of a				x	x	x	x

ACTIVITY	MONTH						
	MAR	APR	MAY	JUN	JUL	AUG	SEP
sustainable seed system **Objective 4. Performance monitoring and evaluation**							
Field supervision of seed dissemination							
Data Collection							
Final report							x
Planning of SOW and Budget for Year 2						x	x

Timeline for years 2 and 3 will be designed according to the workplans to be developed in September of 2011 for Year 2 and September of 2012 for Year 3.

V. Outputs / Deliverables for Assessment of Technical Progress:

The following outputs and deliverables are established for FUNDIT and ICTA during Year 1. The deliverables outlined below mark the schedule of funding disbursements upon their progressive completion within the terms of the Fixed Price Contract established between Michigan State University and FUNDIT. The payments will be effective contingent upon completion of other minor deliverables outlined in the timeline. The schedule of disbursements will be divided in four installments. First deliverable: payment of 30% of the total budgeted amount for Year 1. Second deliverable: 40% of the total budgeted amount for Year 1. Third and fourth deliverables: 15% each of the total budgeted amount for Year.

First Deliverable: Approved Scope of Work and fully signed Fixed Price contract with MSU
Due Date: 7 Days after receiving partially signed fixed Price contract from MSU
Deliverable Due Date: Upon receiving a fully executed fixed Price Contract by MSU
Amount: 30% of Year one (2/1/11-9/30/11) approved budget.

Second Deliverable: Purchase of 54 tons contract with producers completed and ready to be paid
Due Date: March 21, 2011
Deliverable Due Date: March 24, 2011 (or one week after confirmation of the Second Deliverable)
Amount: 40% of Year one (2/1/11-9/30/11) approved budget.

Third Deliverable: Intermediate report on training activities up to last week of June
Due Date: July 8 2011
Deliverable Due Date: July 11, 2011 (or one week after confirmation of the Third Deliverable)
Amount: 15% of Year one (2/1/11-9/30/11) approved budget.

Fourth Deliverable:

1) An annual report outlining achieved field production and training results. This deliverable also a viable plan for the implementation of a low-cost sustainable system for the multiplication of improved varieties of bean during Years 2 and 3 of the project.
2) The submission of the performance monitoring and evaluation data gathered according to Objective 4 of Year 1.
3) A Scope of Work and Budget for activities to be carried out by ICTA in Year 2 of the project (10/1/11-9/30/12).

Due Date: By September 15.
Deliverable due date: September 22, 2011 (or one week after confirmation of the Fourth Deliverable)
Amount: 15% of Year one (2/1/11-9/30/11) and 30% of Year two (10/1/11-9/30/12) after approval of Year 2 budget.

VI. Gender Equity:

Ensuring gender equity in the selection of technologies for dissemination as well as for ensuring that women have access to the technologies being disseminated so as to improve their livelihoods will be a priority of this project. Since women‟s involvement in bean production varies significantly among different bean production areas in the target countries, the gender equity activities will need to be contextualized for each area where the bean technology package is disseminated. The distinct dimensions of the roles of rural men and women relative to bean production, household food security, and handling and marketing of grain will be considered for each of the target areas and the appropriate dissemination strategies developed in accord with these roles.

To ensure that these gender equity issues are adequately addressed, the project will consult with a gender specialist from ICTA when designing and implementing technology dissemination strategies so as to ensure that women will have equal access as male farmers to the improved bean technology package. In addition, the differential effects of interventions on the welfare of both women and men will be documented for monitoring and assessment of project performance. In particular, consideration will be given selecting small red and black bean types that are not only highly productive (thus maximizing the return on the investment of a women‟s time to produce food), but also varietal traits that will not demand additional inputs for management of the crop. As example, disease resistance in improved varieties reduces the need for farmers (which include women) to purchase and apply costly and potentially harmful (to human health) fungicides, bactericides and insecticides, to control vectors of plant viruses. The use of *Rhizobium* inoculants should also be considered as benefitting women as it reduces the need for the purchase of synthetic and costly nitrogen fertilizers.

Priority is given to women's participation in the production and packaging of seeds and inoculants and their distribution, and particularly as a direct beneficiary. Emphasis will be given to women participation at the farm that will be compatible to their rural customs and traditions such as seed classification and storage. A record of beneficiaries in each technology classified by gender will be kept. It is expected among beneficiaries over 10% will be women.

VII. Cost Application:

FUNDIT YEAR 1, 2 and 3	
CRSP BeanTechnology Dissemination Associate Award	
Three year Budget (March 1, 2010 - September 30, 2013)	
	Year one
	3/1/10-9/30/11
Institution Name	
A) Project Management	
Project Coordination at FUNDIT	$7,583.33
Office equipment and communications (laptop, digital camera, GPS, cell phone coomunications)	$2,000.00
Sub Total	**$9,583.33**
B) Seed Production	
Purchase of foundation seed (54MT)	$74,250.00
In-country travel	$3,400.00
Sub Total	**$77,650.00**
C) Objective two: Training	
Salaries & Fringes	$4,000.00
6 training events	$12,000.00
Printed information on technology dissemination	$10,000.00
Materials: 25,000 bags of 10lb for packaging	$10,000.00
Sub Total	**$36,000.00**
D) Objective three, Monitoring & Eval.	
Part-time hired M&E Specialist from ICTA	$1,800.00
Travel	$6,800.00
Sub Total	**$8,600.00**
Total Direct Expenses	**$131,833.33**
Indirect Cost	**$13,183.33**
Grand Total	**$145,016.67**

FUNDIT SOW,

SNEA-Led Activities

Strategic Investment in Rapid Technology Dissemination: Commercialization of Disease Resistant Bean Varieties in Guatemala, Nicaragua, Honduras and Haiti.

(Associate Award to the Dry Grain Pulses CRSP)

AMENDMENT TO FUNDIT‟S SUBCONTRACT

October 1, 2010 – September 28, 2013
SCOPE OF WORK FOR THE

SISTEMA NACIONAL DE EXTENSION AGRICOLA (SNEA),

MISTERIO DE AGRICULTURA, GANDERIA Y ALIMENTACION, GUATEMALA

Sub-Contract to be Amended:

***Fundación para la Innovación Tecnológica, Agropecuaria y Forestal* (FUNDIT)**

18 Avenida "A" 1-40 Residenciales Alamedas de Santa Clara, Sector Las Margaritas Zona 3, Villanueva
Authorized Official for Organization: Jose Angel Dávila Estrada, Director, FUNDIT. 18 Avenida "A" 1-40 Residenciales Alamedas de Santa Clara, Sector Las Margaritas Zona 3, Villanueva. Tel.- 00 (502) 50384289. jade0210@gmail.com

Administrative/Financial Officer for Organization: Deisy Mazariegos, FUNDIT. 18 Avenida "A" 1-40 Residenciales Alamedas de Santa Clara, Sector Las Margaritas Zona 3, Villanueva. Tel- 00 (502) 5038 4289. deisy_mazariegos_fundit@hotmail.com

mailto:**Project Leader:** Ing. Pedro Antonio Rosado, Sub-Director, Direccion de Extension Rural, Sistema Nacional de Extension Agricola (SNEA). 12 Av. 19-01 Zona 1, Guatemala, Ciudad. Tel- 00 (502) 2221 1309. prosado@yahoo.com.mx

Collaborating Host Country Organizations:
Instituto de Ciencia y Tecnología Agricola (ICTA), Ing. Julio Cesar Villatoro. Km 21.5 Carretera hacia Amatitlan, Bárcena Villa Nueva, Guatemala. Tel- 00 (502) 54179200. juliocevillatoro@hotmail.com

I. Constraint Statement with Justification:

A significant number of improved bean varieties with higher yield potential and tolerance to biotic (diseases and pests) and abiotic (adaptation to poor soils, heat and drought) stresses than traditional varieties, are currently available in Guatemala and have been registered for commercial planting (ICTA Ligero, ICTA Peten and ICTA Zam). These improved varieties, however, are not readily accessible to the majority of small scale bean producers, due to the low availability of quality seed of improved varieties locally at an affordable price. The strengthening of local and formal seed systems, through the integration of key actors (public and private institutions to generate and transfer of agricultural technologies, farmer organizations and private companies) for the sustainable production of quality seeds would facilitate enhance seed availability and dissemination of improved varieties in underserved regions of the country.

On the other hand, bean production by small-holder bean farmers in Guatemala is frequently carried out under sub-optimal conditions in low fertility soils needed for good crop development and productivity. The technologies of inoculation with *Rhizobium* and the use of organic fertilizers

produced locally would improve soil tilth and nitrogen status of the crop and increase bean productivity, thus enhancing the benefits derived from planting improved varieties.

Thanks to the participation of the Guatemalan Institute of Agriculture Science and Technology (ICTA), the Bean Technology Dissemination (BTD) project produced in 2011 a total of 54 metric tons of improved seeds (27 metric tons of ICTA Peten and 27 metric tons of ICTA Ligero). This seed is ready to be disseminated in specific areas of need around the country where these varieties have a proven track record of performance.

In order to accomplish the dissemination of these varieties and its subsequent production by small farmers in a sustainable fashion, adopting practices to ensure the genetic strength of the seed, the project will count on the National Extension Service (SER). SER has recently launched a program where a team of three extension agents is assigned to each municipality. Working with this team in target municipalities will permit the dissemination and sustainability of the BTD project activities at the reach of small farmers.

II. Project Objectives:

Objective 1. To develop sustainable national capacities in Guatemala for the production and distribution of quality seed of improved varieties of beans developed through investments in research by the Dry Grain Pulses CRSP for the benefit of small holder farmers in target areas of the country to increase national productivity.
Objective 2. To develop national capacities for the production and use of *Rhizobium* inoculants on beans to enhance the sustainability of cropping systems and bean productivity in low fertility fields.
Objective 3. To develop and implement a sustainable bean seed production and distribution system in Guatemala so as to ensure access by small-holder resource-poor farmers to quality seed with high productivity potential.
Objective 4. To monitor and evaluate the dissemination and adoption of improved varieties of bean seed and *Rhizobium* inoculants and their contributions to national food and nutritional security.

III. Planned Activities in this Scope of Work:

In Guatemala, the Institute of Agricultural Science and Technology (ICTA) and the Sistema Nacional de Extension Agricola (SNEA), within the Ministerio de Agricultura, Ganaderia y Alimentacion (MAGA), will work together as partners with distinct but complementary roles to complete the activities under this project. ICTA has the national mandate within MAGA for the introduction, testing and registration of improved varieties of beans for commercial production by farmers as well as for the multiplication of seed for distribution within Guatemala. The Sistema Nacional de Extension Agricola (SNEA) on the other hand has the designated role of providing attention and technical assistance to rural agricultural communities and resource-poor farmers in Guatemala. The fact that SNEA has 93 extension offices in 92 municipalities in 19 departments of Guatemala gives evidence of their institutional capacity to be an effective partner in achieving the technology transfer goals of this project.

Within the Bean Technology Dissemination (BTD) project, ICTA will assume responsibility for the production of “quality-declared” seed of improved bean varieties and of *Rhizobium* inoculum, the two technologies that constitute the bean technology package to be distributed to 30,000 small-holder farmers over the course of the three-year project in Guatemala. ICTA will also be responsible for providing training on improved seed handling and storage techniques to community promotors and leader farmers.

The SNEA will have primary responsibility for the dissemination of the bean technology package and providing technical assistance on enhaning bean productivity to resource-poor farmers in

strategically selected communities where the AEA has agriculture extentionists working. Ing. Julio Cesar Villatoro, Head of ICTA‟s Bean Program, will serve as the point of contact for the SNEA within ICTA to ensure effective collaboration and coordination of activities.

For the first year of the project (October 1, 2010 – September 30, 2011), municipalities in the departments of the Peten, Chiquimula, Jalapa, and Jutiapa have been strategically selected to be the recipients of the bean technology dissemination package. These departments are strong bean producing regions in which small-holder farmers have limited access to high quality seed. Within each municipality extension office, two extension agents are assigned to work with voluntary agriculture community promoters while a social worker carries out training to men and women on means to improve their standard of living. Topics for farmer capacitation under this project will include the advantages of planting "quality" bean seed, the traits and management requirements of the improved bean varieties, and the use of *Rhizobium* in low fertility soils. The SNEA will therefore play a strategic linking role between the productivity enhancing bean technology package (quality seed of improved varieties, *Rhizobium* inoculum and technical assistance) and the targeted farmers in each community. To carry out the planned distribution and technical assistance activities, the SNEA commits the use of their extension staff in the selected municipalities.

Michigan State University (MSU) is the Management Entity contracted by USAID-Washington for this project and will establish a Fixed Price Contract with FUNDIT. Under this working scenario, the role of FUNDIT is be the principle subcontractor for BTD project activities in Guatemala and to effectively administer the funds, distributing them to the SNEA and other partners (mainly ICTA) to ensure project integrity and effective overall implementation of the project. FUNDIT will work closely with SNEA and ICTA administrative and technical personnel to ensure that activities are carried out in accord with annually developed Scopes of Work and that funds are spent according to approved budgets. It is also important that FUNDIT monitors and encourages communication between SNEA and ICTA staff so as to ensure coordination and effectiveness of all activities as well as the overall success of the BTD project in Guatemala. FUNDIT will also be responsible for the reporting of technical progress to the Project Manager at MSU, Dr. Luis Flores, to ensure the achievement of specific mutually agreed-upon "deliverables" and for the submission of invoices to MSU so that payments are received by SNEA and ICTA in a timely manner.

3.1 Project Activities in Year 1 (March 1, 2010 – September 30, 2011):

Objetive 1: Production and dissemination of quality seed. While ICTA has been tasked with the production of the quality-declared seed to initiate activities during Year 1, SNEA will be responsible for disseminating the seed of the improved bean varieties to target farmers in the Departments of the Peten, Jutiapa, Jalapa and Chiquimula. The following activities will be carried out under this amendment:

- FUNDIT will work with SNEA to select the municipalities in each region where seed of the improved bean varieties ICTA Peten and Icta Ligero will be disseminated.

- A total of 54 tons of quality-declared seed will be disseminated in Year 1 of the project through the SNEA extensión offices with the purpose of "capitalizing" communities with the high quality genetic material.

- FUNDIT will coordinate with SNEA the transportation of quality seed from the ICTA warehouses to the extension offices with the goal of reaching at least 5,000 farmers during Year 1 (prior to September 30, 2011).

-

Objetive 2. To develop national capacities for the production and use of *Rhizobium* inoculants on beans to enhance the sustainability of cropping systems and bean productivity in low fertility fields.

- FUNDIT will coordinate with SNEA and ICTA for the training of the extension agents in the production of seed, post-harvest technology and agronomic management practices to enhance pulse productivity.

- Training on *Rhizobium* technology (use and application) will be provided to at least 120 extension agents and agriculture promoters from the target communities. From two to three training sessions will be held in the target geographic areas.

Objetive 3. To develop and implement a sustainable bean seed production and distribution system in Guatemala so as to ensure access by small-holder resource-poor farmers to quality seed with high productivity potential.

- To reach this objective, FUNDIT will work with SNEA to develop and implement a sustainable model for the production of quality-declared bean seed at the local/municipality level. The Bean Program of ICTA has agreed to collaborate with and support SNEA"s efforts. It is essential that such a community-based seed system be developed so that quality bean seed can be accesible to resource-poor small-holder farmers to enhance the productivity and profitability of their farms. Seed systems are also critical for ensuring the food and nutritional security of rural households as well as the food security and supply of grain of staple crops in the domestic markets in Guatemala. This is especially important with the changes in climate being experienced by Central American countries and the increasing market prices of bean seed which is quickly becoming unaffordable to resource-poor farmers. The envisioned community-based seed multiplication system under this project should be compatible with and take advantage of the local cultural patterns of farmer associations or individual entrepreneurs, and should be designed based on successful experiences in the region.

- The "community seed banks" in Nicaragua implemented by INTA with support from the FAO and this BTD project is a candidate model that should be assessed for its adaptation to the Guatemalan context. Efforts should be made during Year 1 of this project to design and utilize the community seed bank approach for bean seed multiplication in Years 2 and 3, since the BTD project does not have sufficient funding to pay farmers to produce the quality seed each year in Guatemala for dissemination purposes. Efforts must be oriented to avoid dependency of the communities on outside sources for production inputs such as free seed.

- Community seed banks permit the recovery of seed provided to farmers, the multiplication and dissemination of quality seed to communities of farmers, and a means for farmers to proactivity take measures to ensure their access to productivity-enhancing technologies. Training will be provided on the vision, operation and sustainability of the "Bancos Locales de Semilla" through training and field tours for SNEA extension agents in Nicaragua. Other training sessions will be arranged in Guatemala.

Objetive 4. To monitor and evaluate the dissemination and adoption of improved varieties of bean seed and *Rhizobium* inoculants and their contributions to national food and nutritional security.

- Data will be collected during the first year to establish the baseline for the project. The format for data collection will be developed following the recommendations of Dr. Mywish Maredia, Michigan State University. Personnel in charge of monitoring and evaluation at ICTA will be

linked to SNEA to carry out this activity. SNEA municiple extension offices will be responsible for keeping detailed records on where, when and to whom the quality bean seed is distributed. SNEA personnel will work in close collaboration with ICTA monitoring and evaluation personnel to collect and compile the requested information for submission to Michigan State University are part of regular reporting requirements of the project (see the third deliverable below).

Project Timeline for Year 1 (February 1 to September 30, 2011):

ACTIVIDAD	MONTH						
	MAR	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**
Objetivo 1: Seed dissemination							
Transportation of seed to extensión offices			xx	xx			
Seed delivery in Peten			x x				
Seed delivery in Jalapa, Jutiapa, Chiquimula			x x				
Objective 2: Training to extension agents							
Training on seed production and storage				x x			
Training on *Rhizobium* inoculum						xx	
3: Design and implementation of a sustainable seed production system at the community level					x x	x x	x x
Travel to Nicaragua to visit the community seed banks					xx		
Field monitoring and follow up for seed dissemination					x x	x x	

IV. Outputs / Deliverables for Assessment of Technical Progress:

The deliverables outlined below mark the schedule of funding disbursements upon their progressive completion within the terms of the Fixed Price Contract established between Michigan State University and FUNDIT. The payments will be effective contingent upon completion of other minor deliverables outlined in the timeline. The schedule of disbursements intended for SNEA will be divided in four installments. First deliverable: payment of 30% of the total budgeted amount for Year 1. Second deliverable: 40% of the total budgeted amount for Year 1. Third and fourth deliverables: 15% each of the total budgeted amount for Year.

First deliverable:

Approved Scope of Work for SNEA, and fully signed amendment with FUNDIT.
Deliverable Due Date: Upon receipt of a fully executed Fixed Price Contract by MSU.
Payment Amount: 30% of Year One (2/1/11-9/30/11) approved budget equivalent to ten thousand, one-hundred and seventy dollars with seventy cents ($10,170.60).

Second deliverable:

Delivery of 54 metric tons of quality-declared seed by SNEA in the target municipalities of the Departments of Peten, Jutiapa, Jalapa and Chiquimula.

Deliverable Due Date: June 21, 2011 or a week after the contract is signed.

Payment Amount: 35% of the budgeted amount for Year One (2/1/11-9/30/11) approved budget equivalent to eleven thousand, eight-hundred and sixty-five dollars and seventy cents ($11,875.70).

Third deliverable:

Intermediate report on activities concerning training and field work on seed dissemination up to the last week of June. The report will include the following:

1. An annual technical progress report outlining achieved results in dissemination and training of extension agents and farmers.
2. The submission of the performance monitoring and evaluation data gathered according to Objective 4 of Year 1.
3. A Scope of Work and Budget for activities to be carried out by SNEA in Year 2 of the project. This deliverable also must include a viable plan for the implementation of a low-cost sustainable system for the multiplication of improved varieties of bean during Years 2 and 3 of the project.

Deliverable Due Date: First week of July 2011 or a week after reception of report.

Payment Amount: 35% of the budgeted amount for Year One (2/1/11-9/30/11) approved budget equivalent to eleven thousand, eight-hundred and sixty-five dollars and seventy cents ($11,875.70).

V. Gender Equity:

Ensuring gender equity in the selection of technologies for dissemination as well as for ensuring that women have access to the technologies being disseminated so as to improve their livelihoods will be a priority of this project. Since women‟s involvement in bean production varies significantly among different bean production areas in the target countries, the gender equity activities will need to be contextualized for each area where the bean technology package is disseminated. The distinct dimensions of the roles of rural men and women relative to bean production, household food security, and handling and marketing of grain will be considered for each of the target areas and the appropriate dissemination strategies developed in accord with these roles.

To ensure that these gender equity issues are adequately addressed, the project will consult with a gender specialist from SNEA when designing and implementing technology dissemination strategies so as to ensure that women will have equal access as male farmers to the improved bean technology package. In addition, the differential effects of interventions on the welfare of both women and men will be documented for monitoring and assessment of project performance.

In particular, consideration will be given selecting small red and black bean types that are not only highly productive (thus maximizing the return on the investment of a women‟s time to produce food), but also varietal traits that will not demand additional inputs for management of the crop. As example, disease resistance in improved varieties reduces the need for farmers

(which include women) to purchase and apply costly and potentially harmful (to human health) fungicides, bacteriocides and insecticides, to control vectors of plant viruses. The use of *Rhizobium* inoculants should also be considered as benefitting women as it reduces the need for the purchase of synthetic and costly nitrogen fertilizers.

Priority is given to women's participation in the production and packaging of seeds and inoculants and their distribution, and particularly as a direct beneficiary. Emphasis will be given to women participation at the farm that will be compatible to their rural customs and traditions such as seed classification and storage. A record of beneficiaries in each technology classified by gender will be kept. It is expected among beneficiaries over 10% will be women.

VI. Budget:

AMENDMENT OF FUNDIT SUBCONTRACT FOR SNEA ACTIVITIES

CRSP BeanTechnology Dissemination Associate Award	
Three year Budget (March 1, 2010 - September 30, 2013)	
	Year one
	3/1/10-9/30/11
Institution Name	
A) Project Management	
Project Coordination at FUNDIT (from ICTA budget)	$0.00
Equipment support to 20 Extension Offices (a printer, a laptop computer and a GPS)	$14,000.00
Sub Total	**$14,000.00**
B) Seed Dissemination	
Transportation from ICTA to Extention Offices	$4,320.00
5 community bank models established	$5,000.00
Sub Total	**$9,320.00**
C) Objective two: Training	
Trip to Nicaragua	$7,500.00
6 training events (from ICTA budget)	$0.00
Sub Total	**$7,500.00**
D) Objective three, Monitoring & Eval.	
From ICTA budget	$0.00
Sub Total	**$0.00**
Total Direct Expenses	**$30,820.00**
Indirect Cost	**$3,082.00**
Grand Total	**$33,902.00**

VII. Budget Notes

FUNDIT YEAR 1 FOR SNEA BUDGET NOTES CRSP BeanTechnology Dissemination Associate Award (April 1, 2011 - September 30, 2011)		
A) Project Management		
Project Coordination at FUNDIT (from ICTA budget)	-	From FUNDIT ICTA budget
Equipment support to 20 Extension Offices (a printer, a laptop computer and a GPS)	14,000.00	At least 20 extension offices will be benefitted with one notebook computer, one GPS and one printer
Sub total	**14,000.00**	
B) Seed Dissemination		
Transportation from ICTA to Extention Offices	4,320.00	This is equivalent to $80/MT to bring the bagged seed to the extension agencies
Sub total	**9,320.00**	
C) Objective two: Training		
Trip to Nicaragua	7,500.00	This is a lump sum cost calculated at $250/person for a trip for 30 people in a bus from Guatemala to Nicaragua, for two days.
6 training events (from ICTA budget)	-	This expense was budgeted under the FUNDIT ICTA budget
Sub Total	**7,500.00**	
D) Objective three, Monitoring & Eval.		
From ICTA budget	-	This is to cover the partial cost of co-paying the M&E expert from ICTA.

MOU between Dry Grain Pulses CRSP, ICTA, SNEA and FUNDIT (Spanish)

"INVERSIÓN ESTRATÉGICA EN LA DIFUSIÓN RÁPIDA DE LA TECNOLOGÍA: LA COMERCIALIZACIÓN DE VARIEDADES DE FRIJOL RESISTENTE A LAS ENFERMEDADES EN GUATEMALA, NICARAGUA, HONDURAS Y HAITI"
MEMORANDUM DE ENTENDIMIENTO

ENTRE:
GRUPO COLABORATIVO EN EL PROYECTO DE GUATEMALA

Introducción

Los objetivos globales de la *"Iniciativa Alimentando el Futuro"* de USAID, (FtF por sus siglas en inglés), como una respuesta a la persistencia del hambre en el mundo y la crisis de seguridad alimentaria son los siguientes: 1. Aumentar la productividad de la agricultura, la rentabilidad y los ingresos de las familias campesinas, 2. Difundir los resultados de la investigación agrícola a fin de reducir riesgos y la vulnerabilidad, aumentando así las ganancias de la productividad de los cultivos básicos, 3. Aumentar el acceso a los mercados en un entorno normativo mejorado con una mayor inversión del sector privado, y 4. Aumentar la intervención en la nutrición con el fin de reducir la mortalidad infantil y mejorar sus resultados nutricionales. Las legumbres (leguminosas comestibles) son de vital importancia tanto como fuente de ingresos y como un aporte a la nutrición de los pequeños agricultores de escasos recursos en todo el mundo. A lo largo de la historia humana, las legumbres han sido alimentos básicos para la gente de pocos ingresos y básicos porque proporcionan las proteínas necesarias, fibra y micronutrientes para mejorar el valor nutricional de una dieta tradicional rica en hidratos de carbono (yuca, maíz, arroz, trigo, etc.)

En toda América Latina, el frijol (cultivo nativo de la región) es ampliamente producido y consumido y por consiguiente su importancia es estratégica tanto para la seguridad alimentaria y nutricional tanto en las comunidades económicamente deprimidas en el área rural y urbana. Desafortunadamente, muchos agricultores de escasos recursos no tienen acceso a variedades mejoradas de frijol adaptadas a las condiciones agro-climáticas de cada región y resistentes a las enfermedades económicamente más importantes. En consecuencia, los rendimientos de frijol siguen siendo bajos, lo que contribuye a la inseguridad alimentaria y limita el potencial del frijol a no llegar a ser un cultivo comercial rentable.

La inversión a largo plazo en la investigación del Frijol/Caupí del programa de investigación cooperativa (CRSPs) se ha traducido en el desarrollo y la liberación de variedades de frijol resistentes a enfermedades que han demostrado aumentar el rendimiento de grano de la cosecha en América Central y el Caribe en un 30% o más. Los logros tecnológicos logrados por USAID y el CRSP para granos leguminosos secos, dan la oportunidad de abordar la grave escasez de semillas de frijol de alta calidad que los pequeños agricultores de escasos recursos necesitan para aumentar así su productividad.

Siendo Guatemala uno de los países objetivos, el presente Memorando de Entendimiento formaliza la relación entre el Instituto de Ciencia y Tecnología Agrícola (ICTA), el Servicio Nacional de Extensión Agrícola (SNEA), el FUNDIT como agencia encargada de la administración de recursos, y el Dry Grain Pulses Collaborative Research Support Program (CRSP) (traducido como el Programa Colaborativo en Investigacion sobre Cultivos Leguminas Comestibles de Grano Seco), cual tiene su sede en la Universidad Estatal de Michigan, conocido oficialmente como "Michigan State University". Michigan State University (MSU) fue recipiente de una concesión para dicho proyecto ("*Inversión Estratégica en al Difusión Rápida de la Tecnología: La Comercialización de Variedades de Frijol Resistentes a las Enfermedades en Guatemala, Nicaragua, Honduras y Haití*") del "United States Agency for International

Development" (USAID) que le otorga autoridad para contratar y financiar servicios técnicos en Guatemala y los demás países participantes en el proyecto.

Antecedentes

Guatemala, como los otros países bajo esta iniciativa viven con una gran incidencia de pobreza extrema (> 50%), experimentando la constante inseguridad alimentaria y desnutrición crónica generalizada. Las familias dedicadas a la agricultura y en las regiones rurales de estos países son las más vulnerables a la pobreza. Desafortunadamente, a la agricultura se le atribuye apenas con un pequeño porcentaje de las necesidades alimentarias de la "extrema pobreza". De acuerdo a los datos fiscales de Guatemala para año fiscal 2010 la implementación del FTF refleja que el 60 % de las compras de granos básicos en las familias en extrema pobreza son para autoconsumo. El Programa Mundial de Alimentos ha detectado que la disponibilidad de los suministros de alimentos en estos países se aproxima a la media del África subsahariana. Un aumento en el consumo de alimentos ricos en nutrientes y proteínas como los frijoles ayudaría, sin duda alguna ayudará a resolver los problemas de la desnutrición de los más pobres.

Los cambios climáticos (los episodios de sequía más frecuentes, las altas temperaturas) son factores importantes que contribuyen a la baja productividad de los cultivos básicos principales de la región (maíz y frijoles). El acceso de los agricultores a las tecnologías mejoradas para aumentar la productividad de granos básicos (incluidas las legumbres de grano seco / frijoles) y lograr una mayor resistencia a los eventos críticos son necesarias para mejorar la disponibilidad y accesibilidad de los alimentos, así como prever la autosuficiencia en estos países.

La propuesta de proyecto de rápida difusión de la tecnología para los granos secos leguminosos es una respuesta eficaz y adecuada para la implementación de las estrategias futuras de las misiones de USAID en Guatemala. Los programas del CRSP de leguminosas comestibles de granos secos (Dry Grain Pulses CRSP) (2007-2012) y su predecesor, el Bean/Cowpea CRSP (1980-2007)", han apoyado una investigación multidisciplinaria e institucional de proyectos que han ayudado a crear un aumento de capacidad en América Latina (Honduras, Guatemala, Nicaragua, México, Ecuador, etc.) y el Caribe (República Dominicana, Haití y Jamaica) en los últimos 30 años. Como resultado de la colaboración a largo plazo, los científicos universitarios de los Estados Unidos de Norte América han desarrollado un portafolio de tecnologías y conocimientos relativos en materia de mejoramiento genético, manejo integrado de cultivos, ciencia de los alimentos, nutrición humana, el almacenamiento de grano, y la comercialización de granos que se pueden implementar y aportar beneficios significativos a actores de las cadenas de valor de frijol en estos países que se extiende desde las familias de agricultores a los consumidores. A través del CRSP, se han establecido vínculos sólidos con los Sistemas Nacional de Investigación Agrícola y Extensión, universidades, ONGs, Centros Internacionales de Investigación Agrícola (CIAT, IITA), asociaciones de agricultores (incluidos los CIAL), y organizaciones del sector privado que prestan sus servicios de apoyo al sector del frijol.

Estas relaciones y la comprensión del sector de frijol en Guatemala, será esencial para lograr con éxito los objetivos del proyecto de difusión tecnológica propuesta. Para mayor referencia, el ámbito completo de trabajo del proyecto se encuentra descrito en el anexo 1 titulado Propuesta Técnica Diseminación de Tecnología del Frijol.

Las Partes

ICTA

El Instituto de Ciencia y Tecnología Agrícola es la institución de derecho público responsable de generar y promover el uso de la ciencia y la tecnología agrícolas en el sector respectivo. En consecuencia, le corresponde conducir investigaciones tendientes a la resolución de los problemas de explotación racional agrícola que incidan en el bienestar social; producir materiales y métodos para incrementar la

productividad agrícola; promover la utilización de la tecnología a nivel del agricultor y el desarrollo rural regional.

SERVICIO NACIONAL DE EXTENSION AGRICOLA (SNEA)

El SNEA es un paquete de servicios institucionales con el objetivo de apoyar el proceso de desarrollo socio-económico de la familia rural. Sus ejes principales son (1) el apoyo a la producción familiar y mercadeo agropecuario (2) la dinamización de las economías familiares rurales, que activen su economía, y atención diferenciada a productores excedentarios y comerciales; y (3) el apoyo Procesos productivos con sostenibilidad social, ambiental y económica.

FUNDIT

FUNDIT es una organización sin fines de lucro diseñada para dar agilidad a la implementación de programas especiales en cooperación con el equipo técnico y financiero del ICTA. Su fortaleza radica en la administración transparente y ágil de financiamiento interno y externo que data de más de 10 años.

DRY GRAIN PULSES CRSP, MICHGAN STATE UNIVERSITY, "*Proyecto de Diseminación de Tecnológicas del Frijol"* (BTD)

Michigan State University (MSU) es la entidad con personería jurídica para la administración del Dry Grain Pulses CRSP y la institución contratado por la United States Agency for International Development para asumir el cargo principal por la ejecución, monitoreo y alcance de los objetivos del Proyecto de Diseminación de Tecnologías del Frijol (DTF). Para cumplir con los actividades y metas establecidos para Guatemala, MSU ha establecido un sub-contrato con FUNDIT, quien tomara responsabilidad legal para la administración de fondos, coordinación de actividades y el monitoreo de progreso técnico de acuerdo con los planes de trabajo establecidos anualmente para las instituciones de ICTA y SNEA.

Campos de Cooperación:

Dry Grain Pulses CRSP-ICTA

1) Cumplir con las metas y objetivos de diseminación tecnológica en la producción de frijol.
2) Desarrollar una cooperación más estrecha a nivel de los equipos técnicos de ambas instituciones que permitan una evaluación constante de las actividades y su respectiva redirección (cuando sea necesario) hacia resultados de mayor impacto.
3) Identificar áreas de apoyo en las cuales Dry Grain Pulses CRSP pueda transferir programas de entrenamiento en áreas temáticas de interés concernientes a la tecnología agrícola.
4) Fortalecer la capacidad gerencial (técnico como administrativa) del equipo contraparte de ICTA con miras a los años 1, 2 y 3 del proyecto de diseminación tecnológica (BTD por sus siglas en ingles).

Dry Grain Pulses CRSP-SNEA

1) Cumplir con las metas y objetivos del BTD aprovechando de manera eficiente los recursos humanos del SNEA establecidos en áreas geográficas prioritarias de producción de frijol como áreas altamente vulnerables a inseguridad alimentaria.
2) Establecer una relación estrecha entre el SNEA y equipo técnico del BTD (inclusive la capacidad técnica de MSU y otras instituciones socias en el CRSP) para enriquecer los programas de entrenamiento de los extensionistas agrícolas relacionados con el programa BTD.
3) Identificar las áreas de necesidad de equipo de campo para facilitar y profesionalizar las tareas del extensionista agrícola.
4) Evaluar modelos de extensión agrícola a nivel mundial que puedan ser transferibles a Guatemala con el objetivo de mejorar las estrategias y campos de acción del extensionista agrícola.

Dry Grain Pulses CRSP/MSU-FUNDIT

1) Fortalecer los lazos de cooperación en el área administrativa para la ejecución del BTD durante el tiempo de existencia del proyecto.
2) Establecer a la FUNDIT como la interface administrativa para el manejo de fondos del BTD a ser canalizados hacia ICTA y SNEA.
3) Desarrollar un sistema de chequeos eficiente para medir progreso hacia las metas establecidas con ICTA y SNEA en torno a los objetivos del BTD.

ICTA-SNEA

1) Fortalecer el convenio de cooperación entre el ICTA como un instituto de cooperación y el SNEA como una agencia de extensión para llevar a cabo iniciativas como el BTD de manera conjunta, efectiva y de alto impacto en las áreas geográficas objetivo.
2) Definir un plan de trabajo conjunto que permita explotar eficientemente los recursos disponibles del BTD para aprovechar la complementariedad de capacidades en ambas instituciones (investigación/extensión).
3) Llevar a cabo las actividades conjuntas bajo un marco de cooperación transparente que permita la evaluación constante de los resultados y el mejoramiento de procesos técnicos y de cooperación.

FUNDIT-ICTA-EXTENSION AGRICOLA

1) Establecer un marco legal (contrato, etc.) que permita la ejecución de fondos del BTD administrados por FUNDIT.
2) Establecer el itinerario de monitoreo y evaluación de actividades y resultados contra objetivos pactados bajo contrato.

Documentos de Referencia

Este documento representara un anexo a los documentos contractuales firmados entre las instituciones cooperantes en Guatemala y Michigan State University para la ejecución de actividades asociado con el Proyecto de Diseminación de Tecnologías del Frijol y el Programa Dry Grain Pulses CRSP.

Firman conforme:

_____ MSU: Dr.
Irvin Widders Director Dry Grain Pulses CRSP Fecha: _____

_____
ICTA: Dr. Max Gonzalez
Gerente General ICTA Fecha:_____

_____
SNEA: Pedro Rosado
Director ENEA Fecha:_____

_____
Jose Angel Dávila
Director FUNDIT Fecha: _____

**********SIGNATURE PAGE BELOW**********

Documentos de referencia

Este documento representara un anexo a los documentos contractuales firmados entre las instituciones cooperantes en Guatemala y MSU.

Firman conforme:

MSU: Dr. Irvin Widders
Director Dry Pulses CRSP
Fecha: 10 MAY 2011

ICTA: Dr. Elias Raymundo
Gerente General ICTA
Fecha: 10 MAY 2011

SNEA: Pedro Rosado
Sub Director de Extensión Rural
MAGA
Fecha: 10 MAY 2011

Jose Angel Dávila
Presidente FUNDIT
Fecha: 10 MAY 2011

HAITI

IICA SOW

Strategic Investment in Rapid Technology Dissemination: Commercialization of Disease Resistant Bean Varieties in Guatemala, Nicaragua, Honduras and Haiti.

(Associate Award to the Dry Grain Pulses CRSP)
October 1, 2010 – September 28, 2013
SCOPE of WORK

Organization to be Sub-Contracted:
Inter-American Institute for Cooperation in Agriculture (IICA) IICA Office.
8, rue Mangonés Berthé
Pétion Ville, Haiti
Tel. (509) 22-56-6858 / 6859
(509)3-747-8653
(505)3-459-5756

alfredo.mena@iica.int, IICA Office Director
Emmanuela.Charles@iica.int , Director Assistant.
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Administrative/Financial Officer for Organization:
Viviane Philippe
Viviane.Philippe@iica.int
Tel. (509) 3-401-1539

Collaborating Host Country Organization(s):
Emmanuel Prophete
National Seed Service
Ministry of Agriculture
National Road No 1
Damien, Port-au-Prince
Haiti
Email: eprophete@gmail.com
Phone: +509 3462 2193, +509 36699891

I. Constraint Statement with Justification:

Haiti, a focal country for the proposed rapid technology dissemination intervention, experiences a high incidence of poverty (> 80%), ongoing chronic food insecurity, and wide-spread malnutrition. Households engaged in agriculture and located in the rural regions are the most vulnerable to poverty. Unfortunately, agriculture is providing a small percentage of the food needs of the "extremely poor." Increased consumption of nutrient dense protein–rich foods such as beans and pigeon peas would help reduce under-nutrition of the poor.

Greater access to technologies such as seed of improved grain legume varieties (bean, pigeon pea and cowpea), improved seed storage techniques and *Rhizobium* inoculants will increase food availability and affordability, as well as provide for greater self-sufficiency on small-scale farms.

The proposed rapid technology dissemination project by the Dry Grain Pulses CRSP (Pulse CRSP) is an effective and appropriate response to the Feed the Future strategy of the USAID Mission in Haiti. Recent reports from the Ministry of Agriculture in Haiti estimate that international relief programs following the 2009 earthquake in Haiti benefited < 10% of the farmers in the country. Increasing the productivity of beans by small-scale farmers addresses both the food and nutritional security concerns in Haiti, as well as has the potential to reduce malnutrition and contribute to long-term sustainability and vitality of agriculture systems.

IICA‟s long term presence in Haiti has allowed it to cultivate close relationships with the Government of Haiti and has previously collaborated with the National Seed Service (NSS) and NGOs involved in agriculture development in the country. The expectation is that IICA working in partnership with the NSS will provide leadership to the Bean Technology Dissemination (BTD) project in Haiti.

Overall goals of the three-year "Rapid Bean Technology Dissemination" project for each participant country include: (1) to make accessible a productivity enhancing technology package (i.e., quality seed of improved varieties, inoculants, etc.) to a total of 30,000 small-holder resource-poor bean farmers , (2) to increase the availability of nutritious bean/pulse grain in domestic markets at affordable prices so as to improve food and nutritional security of the rural and urban poor, and (3) and to implement sustainable bean seed systems with local farmer/community involvement so as to ensure long-term availability of "quality seed" of superior bean varieties beyond the life of the project.

II. Objectives of the Three-Year Sub-Project in Haiti:

1. Objective 1. Coordinate the production of quality-declared/certified seed stocks of improved varieties of bean and other grain legumes, developed with support of the Dry Grain Pulses CRSP. IICA will provide technical oversight of activities under this objective in close collaboration and coordination with the National Seed Service (NSS).

2. Objective 2. Design, coordinate and monitor the dissemination of quality-declared seed and *Rhizobium* inoculant to 30,000 resource-poor farmers in strategic regions of Haiti. IICA will partner and when necessary subcontract private and non-governmental organizations (NGOs) to achieve this objective, utilizing the technical assistance and cooperation of the NSS and the University of Puerto Rico.

3. Objective 3. Develop and implement a sustainable seed production and distribution system in Haiti building on years of experience by the NSS and engaging the appropriate public and private sector partners including farmer associations in the key bean production areas of the country. To achieve this objective, a seed system must be envisioned which is appropriate for and potentially sustainable in the Haitian context, and has defined roles and incentives for the essential players involved in the production of breeder/foundation seed, the multiplication of quality-declared seed, the certification of seed quality, the storage and handling of seed, and a process that enables small-holder farmers to have access at an affordable price to quality seed of improved varieties with high productivity potential.

The detailed activities to accomplish each of these objectives are explained below for each of the three years of the contract.

A. <u>Planned Activities in this Scope of Work for Year 1</u> (October1, 2010 – September 30, 2011):

<u>Activities under Objective 1</u>. Coordinate the production of "quality-declared" seed of improved varieties of bean and other grain legumes (pigeon pea and cowpea).

a. During the first year, IICA will provide in-country coordination of project activities with technical assistance provided by the NSS, the UPR, Agrotechnique and other partners (to be determined) for the production of "quality-declared" seed from basic seed. The basic seed stocks will be obtained from the Dominican Republic, University of Puerto Rico, EAP-Zamorano and other potential sources. The procurement of the basic seed stocks is the responsibility of IICA in cooperation with NSS.

b. IICA will subcontract with Agrotechnique, and other partners (i.e., farmer associations) to produce 35 MT of quality-declared/certified seed, variety DPC-40, that meets certification standards of the NSS. This seed will be packaged and ultimately disseminated to small holder farmers in selected bean producing regions in Haiti by Agrotechnique.

c. IICA will coordinate with NSS for the multiplication of seed of smaller amounts of other improved varieties (e.g., ICTAZAM, Aifi Wuriti and four lines of red mottled beans from UPR) and 10 hectare production of DPC-40 plus cowpea and pigeon pea seed. These seeds will also be disseminated by Agrotechnique.

d. To achieve the sustainability objectives of the project, IICA will work closely with NSS and other partners on the design and implementation of a seed system that will continue beyond the three-year life of the project. This system involving private sector and/or community-based multiplication of seed will be implemented in a graduated manner during the three years. Concurrently, mechanisms must be identified so that multiplied seed is accessible to resource poor bean farmers. The BTD project budget is not adequate to either purchase or pay for the costs of production of quality-declared seed each year, nor would this contribute to sustainability objectives of the project.

e. IICA will hire the services of a *project coordinator* to coordinate activities under this objective, providing oversight and technical assistance on seed production. This staff person will also be asked by the Project Manager (Dr. Luis Flores) to report periodically on the technical progress of the project.

<u>Activities under Objective 2</u>. Design, coordinate and monitor the dissemination of quality-declared seed and *Rhizobium* inoculant to 1,000 resource-poor farmers in strategic regions of Haiti. Quality-declared seed and *Rhizobium* inoculum constitutes the BTD technology package that will be promoted and disseminated during the life of the project.

IICA will subcontract coordinate and provide technical assistance and promotional support to Agrotechnique in the dissemination of quality-declared seed and *Rhizobium* inoculum under the brand "Pwa KRiSP" to resource poor farmers. The specific activities to be implemented are the following:

a. IICA, in collaboration with partners (e.g., AGROTECHNIQUE), will establish a Memorandum of Understanding and potentially a sub-contract to disseminate the BTD technology package (quality-declared/certified seed, *Rhizobium* inoculum, and best seed storage practices).

b. IICA, in cooperation with NSS, will develop a promotional strategy for the "Pwa KRiSP" technology package which will include technical information materials, radio spots on best production and seed storage practices, benefits of "Pwa KRiSP" seed and use of

Rhizobium inoculum. Printed material such as pamphlets, leaflets, and posters will be made available in Agrotechnique‟s 90 depots throughout the country and in agriculture input supplying locations by NGOs and other partners in bean production regions throughout Haiti.

c. IICA will also coordinate efforts with Dr. Consuelo Estevez, University of Puerto Rico, to produce *Rhizobium* inoculum in Haiti in cooperation with the State University of Haiti (Université d‟Etat d‟Haïti, UEH) or ORE. ORE (Organization for the Rehabilitation of the Environment), which has previous experience in *Rhizobium* inoculum production, will be evaluated and considered accordingly.

d. IICA, in cooperation with the NSS and Agrotechnique, will design the best promotion and dissemination strategy for *Rhizobium* inoculum through field demonstrations, printed material, radio spots, etc.

e. The hired project coordinator at IICA will provide oversight and technical assistance on the promotion and dissemination of the *Rhizobium* inoculum. This technician will work closely with the NSS and University of Puerto Rico scientists, Drs. James Beaver and Consuelo Estevez, on technical aspects of project implementation. This staff person will also be asked by the Project Manager (Dr. Luis Flores) to report periodically on the technical progress of the project.

Activities under Objective 3. Develop and implement a sustainable seed production and distribution system in Haiti.

a. To achieve this objective, IICA will work closely with the NSS and the aforementioned partners to design and implement a sustainable seed multiplication and distribution system. Based on experience with seed systems in other countries, placing responsibility for seed multiplication in the hands of benefactors (entrepreneurial farmers, farmer organizations and communities who need to purchase bean seed for planting and desire improved varieties to enhance productivity and market opportunities) will contribute to sustainability. The elements of the sustainable seed systems that have been discussed among the partners include: (a) Strengthening of Agrotechnique and other partners as seed multipliers and technology disseminators with the collaboration of NSS. (b) Institutional capacity building for NSS to carry out its seed field inspection and certification duties. Planning and training activities should occur during year one so that the appropriate organizations are in place to multiply basic, and quality-declared seed in years two and three to obtain sufficient quantities for dissemination to meet the total distribution target of 30,000 beneficiaries.

b. In collaboration with organizations such as AGROTECHNIQUE, WINNER and ACDI-VOCA, IICA will coordinate the training of technicians and farmer groups in the production and storage of improved quality seed in at least five of the major bean production areas in the country.

c. In collaboration with the afore-mentioned partners and farmer groups, the project will evaluate the effectiveness of metal silos to store bean seed and will install a minimum of two silos in the major bean production pockets of the country. The final location of these bins will be determined no later than the end of April of 2011, time by which the dissemination campaign will be already designed for implementation.

d. The hired project coordinator at IICA will work closely with all the partners and will report progress towards goals periodically.

III. <u>Implementation Timeline</u>:

Timeline for the Bean Technology Dissemination Project in Haiti Year 1

Objective/Activity	2010			2011			2011			2011		
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Objective 1												
Technical assistance to NSS to subcontract activities with partners and to reproduce quality-declared/certified seed					X	X						
Objective 2												
Establish memoranda of understanding with partners to disseminate the BTD technology package and coordinate, and evaluate the dissemination process						X	X	X	X	X	X	X
Hire the services of a field agronomist in charge of coordinating the activities under the BTD					X							
Objective 3												
Coordinate the training of technicians and farmer groups in the production and storage of improved quality seeds in at least five of the major bean production pockets of the country.						X	X	X	X			
Evaluate the effectiveness of metal bins to store bean seed and will install a minimum of five silos in the major bean production pockets of the country									X	X		

IV. Outputs/Deliverables for Assessment of Technical Progress:

The following outputs and deliverables are established for IICA during Year 1. The deliverables outlined mark the schedule of funding disbursements upon their progressive completion within the terms of the Fixed Price Contract established between Michigan State University and IICA. The payments will be effective contingent upon completion of other minor deliverables outlined in the timeline. The schedule of disbursements will be divided in four installments. First deliverable: payment of 30% of the total budgeted amount for Year 1. Second deliverable: 30% of the total budgeted amount for Year 1. Third and fourth deliverables: 20% each of the total budgeted amount for Year.

First Deliverable: Approved Scope of Work and fully signed Fixed Price contract with MSU
Due Date: 7 Days after receiving partially signed fixed Price contract from MSU
Amount: 30% of Year one (2/1/11-9/30/11) approved budget.

Second Deliverable: 10 MT (from Agrotechnique and NSS) of quality-declared seed is produced, harvested and ready for dissemination and production for 35MT of seed is planted by Agrotechnique in the Beaumont area in Western Haiti.
Due Date: June 30, 2011
Amount: 30% of Year one (2/1/11-9/30/11) approved budget.

Third Deliverable: Seed distribution completed in at least five geographic regions in Haiti
Due Date: August 8 2011
Amount: 20% of Year one (2/1/11-9/30/11) approved budget.

Fourth Deliverable:
1- Planting and harvesting report of the 60MT of seed distributed and expected yields.
2- Year Two (10/1/11-9/30/12) Budget and Scope of work **Due Date:** By September 15.
Amount: 20% of Year one (2/1/11-9/30/11) and 30% of Year two (10/1/11-9/30/12) approved budgets.

Due to the uncertainties regarding project implementation in Haiti, a revised Scope of Work will be developed with specific outputs and deliverables for Years 2 and 3 of the project. The Year 2 SOW for NSS will be revised before September 2011, and the Year 3 SOW before September 2012.

V. Program Performance Monitoring:

The Performance Monitoring Plan (PMP) for the BTD project has been developed outlining the outputs, outcomes and impacts expected as a result of this development intervention. IICA will provide the personnel and oversight to collect the PMP necessary data outlined in PMP forms 1 through 5 in the annex of this contract. This information will be the basis for the development of project reports to USAID. IICA will be responsible for the collection of the PM data and providing that to Dr. Mywish Maredia according to the required reporting schedule. Funds are designated in the budget to provide support for the collection of needed data to assess technical progress and impact of the technology dissemination project in terms of adoption of improved varieties and bean production in Haiti.

VI. Leveraged Resources:

Leveraged funds from IIICA consist of oversight management, monitoring and evaluation and it is calculated based on the percentage of effort of IICA‟s core staff as detailed in the table below.

MANAGEMENT OVERSIGHT

DETAILS	%	Year 1
Office Director / Alfredo Mena	10%	7,561.17
Assistant to the Representative	5%	704.81
Office Administrator	10%	1,711.91
Accountant	10%	1,077.83
IICA Specialist / Rachelle Chery	10%	2,065.41
Secretary	5%	343.73
TOTAL CONTRIBUTION IICA		**13,464.85**

MONITORING AND EVALUATION TECHNICAL SUPPORT

DETAILS	%	Year 1
Office Director/ Alfredo Mena	5%	3,780.58
IICA Specialist / Rachelle Chery	10%	2,065.41
TOTAL CONTRIBUTION IICA		**5,845.99**

SUMMARY IICA CONTRIBUTION TO THE PROJECT

DETAILS	%	Year 1
Representant IICA / Alfredo Mena	15%	11,341.75
Assistant to the Representative	5%	704.81
Office Administrator	10%	1,711.91
Accountant	10%	1,077.83
IICA Specialist / Rachelle Chery	20%	4,130.82
Secretary	5%	343.73
Office Space, Local Internet, Tel & Other Equip.		6,000.00
TOTAL CONTRIBUTION IICA		**25,310.84**

VII. Gender Equity:

Women play vital roles in the production and marketing of dry beans in Central America and the Caribbean. Not only do women frequently assume the primary responsibility for growing beans in certain areas particularly for household food security (e.g., indigenous women in certain regions of Guatemala), but many women are entrepreneurial and market bean grain in local community markets. In Haiti, women are rarely employed in agricultural production but are frequently involved in harvesting, the sorting of grain and marketing.

Ensuring gender equity in the selection of technologies for dissemination as well as for ensuring that women have access to the technologies being disseminated so as to improve their livelihoods will be a priority of this project. Since women‟s involvement in bean production varies significantly from one country to another and even among the different bean production regions in the target countries, the gender analysis activities will need to be contextualized for each area where the bean technology package is disseminated. The selection of bean target communities and regions within the country of Haiti as well as the design of the dissemination plan of the technology package will take into consideration the distinct dimensions of the roles of rural men and women relative to bean production, household food security, and handling and marketing of grain.

To ensure that these gender equity issues are adequately addressed, the project in Haiti should consult with Dr. Mywish Maredia at Michigan State University, Haitian gender specialists as well as faculty from the Escuela Agricola Panamericana- Zamorano in project planning and design, as well as performance monitoring and assessment of the differential effects of the intervention on the welfare of women and men.

In particular, careful consideration will be given selecting small red and black bean types that are not only highly productive (thus maximizing the return on the investment of a women‟s time to produce food), but also varietal traits that will not demand additional inputs for management of the crop. As example, disease resistance in improved varieties reduces the need for farmers (which include women) to purchase and apply costly and potentially harmful (to human health) fungicides, bacteriocides and insecticides, to control vectors of plant viruses. The use of *Rhizobium* inoculants should also be considered as benefitting women as it reduces the need for the purchase of synthetic and costly nitrogen fertilizers. Finally, women will be considered in the design and implementation of dissemination strategies so as to ensure that women will have equal access as male farmers to this improved technology package. This must certainly be an important issue to address in all subcontracts with NGOs and private sector organizations involved in dissemination and farmer training.

VIII. BUDGET

IICA YEAR 1

CRSP Bean Technology Dissemination Associate Award	
Three year Budget (October 1, 2010 - September 30, 2011)	
	Year one
	10/1/10-9/30/11
Institution Name	
A) Project Management	
Project Coordinator	$9,858.33

IICA YEAR 1

CRSP Bean Technology Dissemination Associate Award Three year Budget (October 1, 2010 - September 30, 2011)	
Managerial support by IICA offices	$0.00
Office equipment and communications (laptop, digital camera, GPS, cell phone communications)	$2,430.00
Sub Total	**$12,288.33**
B) Objective one seed reproduction	
Purchase of foundation seed (5MT)	$0.00
Training Dominican Republic/C. America	$10,000.00
In-country travel	$6,800.00
Sub Total	**$16,800.00**
C) Objective two: seed dissemination	
Salaries & Fringes	$4,000.00
Radio Spots	$10,000.00
In-country travel	$10,200.00
Printed information on technology dissemination	$10,000.00
Materials: 25,000 bags of 5kg for packaging	$10,000.00
Sub Total	**$44,200.00**
D) Objective three, sustainable distr.	
4 training events, field days per year for growers/technicians/other NGOs	$8,000.00
Purchase of silos for demonstrations	$5,000.00
Travel	$4,080.00
Leveraging support for seed reproduction	$0.00
Sub Total	**$17,080.00**
E) Objective four: Rhizobium reprod.	
Salaries & Fringes	$0.00
Equipment for Rhizobium reproduction	$10,000.00
Travel	$10,200.00
Printed information Rhizobium technology dissemination	$2,500.00
Materials: 25,000 bags for packaging	$1,000.00
Sub Total	**$23,700.00**
F) Performance Monitoring	
Salaries & Fringes	$0.00
Personnel mobilization (hotel/per diem, car use and fuel	$2,550.00
Sub Total	**$2,550.00**
Total Direct Expenses	**$116,618.33**
Indirect Cost	**$11,661.83**
Grand Total	**$128,280.17**

IX. BUDGET NOTES

IICA YEAR 1 BUDGET NOTES CRSP Bean Technology Dissemination Associate Award (Feb 1, 2011 - September 30, 2011)		
A) Project Management		
Project Coordinator	9,858.33	Agronomist hired at a rate of $1300/month. Professionals in IICA are hired under a 13 salary/year contract. This amount is calculated as (1300*13)/12 multiplied by 7 months from March to September 2011
Managerial support by IICA offices	-	This support will be provided as a leveraged contribution from IICA and it is calculated as the percentage of time that IICA employees will be dedicated to the project management and follow-up. The total amount of this in-kind contribution as presented in the worksheet IICA CONTRIBUTION TO THE PROJECCT. For Year 1 this contribution is $25,310.84.
Office equipment and communications (laptop, digital camera, GPS, cell phone communications)	2,430.00	These expenses will be sourced in Haiti and are the sum of a laptop computer for the lead agronomist ($1300), a digital camera for use in the project ($300), a GPS receiver ($270). Cell phone communications are calculated at $80 per month for 7 months.
Sub total	**12,288.33**	
B) Objective one seed reproduction		
Purchase of foundation seed (5MT)	-	The MSU office covered this expense directly during Year 1 to secure the seed supplied by CAU in the Dominican Republic
Training Dominican Republic/C. America	10,000.00	Training will be organized for technicians from ORE, Agrotechnique and other partner NGOs to learn modern production techniques in the Dominican Republic and Central America
In-country travel	6,800.00	Travel expenses are calculated at $1700/month for a minimum of 10 field days at $170/day during 4 months of seed reproduction activities. This includes mileage and per diem and fuel expenses for the lead agronomist going to the production sites. This expense is calculated based on the use of IICA vehicles
Sub total	**16,800.00**	
C) Objective two: seed dissemination		
Salaries & Fringes	4,000.00	A temporary field agronomist will be hired to support the seed dissemination logistics and monitoring and evaluation data collection at a rate of $1000 per month for from May to August, 2011
Radio Spots	10,000.00	Needed office equipment to be provided by IICA
In-country travel	10,200.00	$170 per day for 15 field days per month are calculated during the four months of seed dissemination activity

IICA YEAR 1 BUDGET NOTES		
CRSP Bean Technology Dissemination Associate Award		
(Feb 1, 2011 - September 30, 2011)		
Printed information on technology dissemination	10,000.00	A lump sum of $10,000 for this year is allocated to print information material about the project such as posters, pamphlets, etc. This expense is calculated based on IICA experience in producing such material
Materials: 25,000 bags of 5kg for packaging	10,000.00	Plastic bags for 5kg packaging will be purchased at $0.40 per bag. This is an estimated expense. The target number of bags to be used is $20,000, but ordering more during the first year is advised. Bags left can be used during the next year.
Sub Total	**44,200.00**	
D) Objective three, sustainable distr.		
4 training events, field days per year for growers/technicians/other NGOs	8,000.00	Lump sum for four training events for field technicians on the use of improved bean technology are scheduled at a rate of 40 attendees per trainee ($50/person as per IICA experience), or $2000 per event. This are field days were attendees will not need to pay hotel or travel long distances. Otherwise, field days become too expensive and not cost effective.
Purchase of silos for demonstrations	5,000.00	Silos will be acquired to demonstrate air-tight technology to preserve seed
Travel	4,080.00	$170 per field day to cover mileage and per diem expenses for 6 days a month, for four months (one month for each event)
Leveraging support for seed reproduction	-	
Sub Total	**17,080.00**	
E) Objective four: Rhizobium reprod.		
Salaries & Fringes		IICA personnel is a leveraged contribution of the project
Equipment for Rhizobium reproduction	10,000.00	This lump sum is considered for equipment and training. Since the list of equipment needed is unknown, IICA will have line-item flexibility to purchase equipment up to this amount. If more funding is significantly needed, pending items may be purchased with year‟s 2 budget. Final equipment dispositions will be discussed at the end of the project following MSU guidelines on the closing of the project.
Travel	10,200.00	$170/day for fuel and per diem expenses for 15 days for four months
Printed information Rhizobium technology dissemination	2,500.00	lump sum budget for printed materials
Materials: 25,000 bags for packaging	1,000.00	25,000 bags at $0.10/bag
Sub Total	**23,700.00**	

IICA YEAR 1 BUDGET NOTES		
CRSP Bean Technology Dissemination Associate Award		
(Feb 1, 2011 - September 30, 2011)		
F) Performance Monitoring		
Salaries & Fringes	-	IICA will provide technical oversight for the collection of data by the short-term agronomist budgeted in Objective C. The technical oversight by the IICA representative and other technicians is part of the leveraged funds and is equivalent to $750/month for 4 months ($3000). The contribution of IICA in this regards is 5,846.00
Personnel mobilization (hotel/per diem, car use and fuel	2,550	15 days of transportation @ US$170 per day to cover fuel and per diem are considered for annual monitoring and evaluation data gathering... Constant data on monitoring and evaluation will be fed through technical work and the data collection process will be completed during the last two weeks of August and the first two weeks of September.
Sub Total	2,550	
TOTAL EXPENDITURES YEAR 1	**$116,618.33**	
Indirect Cost	**11,661.83**	**10% on Annual expenditure as Indirect Cost for IICA**
GRAND TOTAL YEAR 1	**128,280.17**	

NSS SOW

Strategic Investment in Rapid Technology Dissemination: Commercialization of Disease Resistant Bean Varieties in Guatemala, Nicaragua, Honduras and Haiti.

(Associate Award to the Dry Grain Pulses CRSP)
October 1, 2010 – September 28, 2013
SCOPE of WORK

Organization to be Sub-Contracted:
National Seed Service (NSS)
Project Leader:
Emmanuel Prophete
National Seed Service
Ministry of Agriculture
National Road No 1
Damien, Port-au-Prince
Haiti

Administrative/Financial Officer for Organization:
National Seed Service (NSS)
Project Leader:
Emmanuel Prophete
National Seed Service
Ministry of Agriculture
National Road No 1
Damien, Port-au-Prince
Haiti

Collaborating Host Country Organization(s):
Inter-American Institute for Cooperation on Agriculture

I. Constraint Statement with Justification:

Haiti, a focal country for the proposed rapid technology dissemination intervention, experiences a high incidence of poverty (> 80%), ongoing chronic food insecurity, and wide-spread malnutrition. Households engaged in agriculture and located in the rural regions are the most vulnerable to poverty. Unfortunately, agriculture is providing a small percentage of the food needs of the "extremely poor." Increased consumption of nutrient dense protein–rich foods such as beans and pigeon peas would help reduce under-nutrition of the poor.

Greater access to technologies such as seed of improved grain legume varieties (bean, pigeon pea and cowpea), improved seed storage techniques and *Rhizobium* inoculants will increase food availability and affordability, as well as provide for greater self-sufficiency on small-scale farms.

The proposed rapid technology dissemination project by the Dry Grain Pulses CRSP (Pulse CRSP) is an effective and appropriate response to the Feed the Future strategy of the USAID Mission in Haiti. Recent reports from the Ministry of Agriculture in Haiti estimate that international relief programs following the 2009 earthquake in Haiti benefited < 10% of the farmers in the country. Increasing the productivity of beans by small-scale farmers addresses both the food and nutritional security concerns in Haiti, as well as has the potential to reduce malnutrition and contribute to long-term sustainability and vitality of agriculture systems.

NSS‟s long term involvement with seed systems in Haiti represents a direct link with the Government of Haiti and other NGOs involved in seed production and distribution such as the Food and Agriculture Organization of the United Nations (FAO). Additionally, NSS has been a close collaborator of IICA, which combined leadership constitutes an important partnership for Bean Technology Dissemination (BTD) project to reach its objectives in Haiti.

The overall goals of the three-year "Rapid Bean Technology Dissemination" project for Haiti and each of the other participating countries include: (1) to make accessible a productivity enhancing technology package (i.e., quality seed of improved varieties, inoculants, etc.) to a total of 30,000 small-holder resource-poor bean farmers , (2) to increase the availability of nutritious bean/pulse grain in domestic markets at affordable prices so as to improve food and nutritional security of the rural and urban poor, and (3) and to implement sustainable bean seed systems with local farmer/community involvement so as to ensure long-term availability of "quality seed" of superior bean varieties beyond the life of the project.

II. Objectives of the Three-Year Sub-Project in Haiti:

4. Objective 1. Coordinate the production of quality-declared/certified seed stocks of improved varieties of bean and other grain legumes, developed with support of the Dry Grain Pulses CRSP. NSS will provide technical oversight of activities under this objective in close collaboration and coordination with the Inter-American Institute for Cooperation on Agriculture (IICA).

5. Objective 2. Design, coordinate and monitor the dissemination of quality-declared seed and *Rhizobium* inoculant to 30,000 resource-poor farmers in strategic regions of Haiti. IICA will partner and when necessary subcontract private and non-governmental organizations (NGOs) to achieve this objective, utilizing the technical assistance and cooperation of the NSS and the University of Puerto Rico.

6. Objective 3. Develop and implement a sustainable seed production and distribution system in Haiti building on years of experience by the NSS and engaging the appropriate public and private sector partners including farmer associations in the key bean production areas of the country. To achieve this objective, a seed system must be envisioned which is appropriate for and potentially sustainable in the Haitian context, and has defined roles and incentives for the essential players involved in the production of breeder/foundation seed, the multiplication of quality-declared seed, the certification of seed quality, the storage and handling of seed, and a process that enables small-holder farmers to have access at an affordable price to quality seed of improved varieties with high productivity potential.

   The detailed activities to accomplish each of these objectives are explained below for each of the three years of the contract.

B. Planned Activities in this Scope of Work for Year 1 (October 1, 2010 – September 30, 2011):

Activities under Objective 1. Coordinate the production of "quality-declared" seed of improved varieties of bean and other grain legumes (pigeon pea and cowpea).

f. The NSS will supervise and support the process to purchase, transport and deliver dissemination seed stocks of disease resistant black bean varieties and will reproduce other bean varieties with high potential for adaptation in Haiti provided by ICTA, Zamorano, University of Puerto Rico and MSU. During this year, 35MT of quality declared seed will be produced by Agrotechnique where NSS will play an important role

in assessing the quality of the product in the field and during seed preparation.

g. NSS will also produce 10MT of seed received from Zamorano (100lbs of ICTA ZAM, 102lbs of Aifi Wuriti obtained from Zamorano in Honduras, and 100lbs of four lines of red mottled seed from UPR. NSS will reproduce cowpea and pigeon pea until Year 2.

h. NSS will work closely with IICA and other partners to leverage resources to reproduce and disseminate additional seed in order to meet the project target of reaching a minimum of 30,000 farmers at a rate of 10kg/farmer at the end of Year 3.

i. NSS will work towards the sustainability objectives of the project in cooperation with IICA and other partners. Particularly, NSS will work on the design and implementation of a seed system that will continue beyond the three-year life of the project. This system involving private sector and/or community-based multiplication of seed will be implemented in a graduated manner during the three years. The target goal is to multiply sufficient quantity of quality- declared seed to provide 10 kg of seed per farmer to a total of 30,000 beneficiaries. Concurrently, mechanisms must be identified so that multiplied seed is accessible to resource poor bean farmers. The BTD project budget is not adequate to either purchase or pay for the costs of production of quality declared seed each year, not would this contribute to sustainability objectives of the project.

Activities under Objective 2. Design, coordinate and monitor the dissemination of quality-declared seed and *Rhizobium* inoculant to 1,000 resource-poor farmers in strategic regions of Haiti. Quality-declared seed and *Rhizobium* inoculum constitutes the BTD technology package that will be promoted and disseminated during the life of the project.

IICA will subcontract coordinate and provide technical assistance and promotional support to Agrotechnique in the dissemination of quality-declared seed and *Rhizobium* inoculum under the brand "Pwa KRiSP" to resource poor farmers. The specific activities to be implemented are the following:

a. In cooperation with University of Puerto Rico (UPR), NSS will provide technical assistance to different partners and farmers to introduce, validate the technology and train the personnel involved to promote the diffusion of *Rhizobium* inoculum.

b. Setting up the facility in Haiti to produce *Rhizobium* inoculum and conduct informal training concerning the production of inoculum.

c. In cooperation with IICA, NSS will develop and deliver a training course for 40 technicians (from public sector, NGO"s and private companies) on the use of *Rhizobium* technology (this comes out of IICA"s budget).

d. In cooperation with IICA, coordinate the dissemination of seed with dissemination of *Rhizobium* inoculum

Activities under Objective 3. Develop and implement a sustainable seed production and distribution system in Haiti. The work will entail working on a sustainable production and dissemination of seed, *Rhizobium* inoculum production, technical oversight of seed production and close cooperation with key seed production partners (to be organized in the Association of Seed Producers) to promote adoption of a viable bean production technology package.

e. NSS, in collaboration with UPR and IICA, will facilitate the training of technicians and farmer groups in the production of *Rhizobium* inoculum in Haiti.

f. In collaboration with UPR, IICA, MSU and farmer groups, NSS will evaluate the effectiveness of metal bins to store bean seed. NSS will coordinate the utilization of existing facilities in Haiti to be used as seed storage facilities with the best conditions and at the best negotiable price.

III. Implementation Timeline:

Timeline for the Bean Technology Dissemination Project in Haiti Year 1

Objective/Activity	2010			2011			2011			2011		
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Objective 1												
Technical assistance to NSS to subcontract activities with partners and to reproduce quality-declared/certified seed					X	X						
Objective 2												
Establish memoranda of understanding with partners to disseminate the BTD technology package and coordinate, and evaluate the dissemination process						X	X	X	X	X	X	X
Hire the services of a field agronomist in charge of coordinating the activities under the BTD					X							
Objective 3												
Coordinate the training of technicians and farmer groups in the production and storage of improved quality seeds in at least five of the major bean production pockets of the country.						X	X	X	X			
Evaluate the effectiveness of metal bins to store bean seed and will install a minimum of five silos in the major bean production pockets of the country									X	X		

IV. Program Performance Monitoring:

The Performance Monitoring Plan (PMP) for the BTD project has been developed outlining the outputs, outcomes and impacts expected as a result of this development intervention. IICA will provide the personnel and oversight to collect the PMP necessary data outlined in PMP forms 1 through 5 in the annex of this contract. This information will be the basis for the development of project reports to USAID. NSS will work with IICA to indicate the collection of the PM data using the format provided by Dr. Mywish Maredia according to the required reporting schedule. Funds are designated in the budget to provide support for the collection of needed data to assess technical progress and impact of the technology dissemination project in terms of adoption of improved varieties and bean production in Haiti.

V. Gender Equity:

Women play vital roles in the production and marketing of dry beans in Central America and the Caribbean. Not only do women frequently assume the primary responsibility for growing beans in certain areas particularly for household food security (e.g., indigenous women in certain regions of Guatemala), but many women are entrepreneurial and market bean grain in local community markets. In Haiti, women are rarely employed in agricultural production but are frequently involved in harvesting, the sorting of grain and marketing.

Ensuring gender equity in the selection of technologies for dissemination as well as for ensuring that women have access to the technologies being disseminated so as to improve their livelihoods will be a priority of this project. Since women‟s involvement in bean production varies significantly from one country to another and even among the different bean production regions in the target countries, the gender analysis activities will need to be contextualized for each area where the bean technology package is disseminated. The selection of bean target communities and regions within the country of Haiti as well as the design of the dissemination plan of the technology package will take into consideration the distinct dimensions of the roles of rural men and women relative to bean production, household food security, and handling and marketing of grain.

To ensure that these gender equity issues are adequately addressed, the project in Haiti should consult with Dr. Mywish Maredia at Michigan State University, Haitian gender specialists as well as faculty from the Escuela Agricola Panamericana- Zamorano in project planning and design, as well as performance monitoring and assessment of the differential effects of the intervention on the welfare of women and men.

In particular, careful consideration will be given selecting small red and black bean types that are not only highly productive (thus maximizing the return on the investment of a women‟s time to produce food), but also varietal traits that will not demand additional inputs for management of the crop. As example, disease resistance in improved varieties reduces the need for farmers (which include women) to purchase and apply costly and potentially harmful (to human health) fungicides, bacteriocides and insecticides, to control vectors of plant viruses. The use of *Rhizobium* inoculants should also be considered as benefitting women as it reduces the need for the purchase of synthetic and costly nitrogen fertilizers. Finally, women will be considered in the design and implementation of dissemination strategies so as to ensure that women will have equal access as male farmers to this improved technology package. This must certainly be an important issue to address in all subcontracts with NGOs and private sector organizations involved in dissemination and farmer training.

VI. BUDGET

SS YEAR 1 CRSP Bean Technology Dissemination Associate Award Three year Budget (October 1, 2010 - September 30, 2013)	
	Year one **10/1/10-9/30/11**
A) Project Management	
Field agronomist activity coordinator	$0.00
Managerial support by NSS offices	$0.00
Office equipment and communications (laptop, digital camera, GPS, cell phone communications)	2530
Sub Total	**$2,530.00**
B) Objective 1, seed reproduction	
Supervision travel expenses	$6,800.00
Production of other bean varieties	$4,000.00
Sub Total	**$10,800.00**
C) Objective 3, Sustainable seed distr.	
Supplies for evaluation of metal silos	$4,000.00
Travel	$3,400.00
Contracted Services	$0.00
Sub Total	**$7,400.00**
D) Performance Monitoring	
Salaries & Fringes	$0.00
Personnel mobilization (hotel/per diem, car use and fuel	$0.00
Sub Total	**$0.00**
Total Direct Expenses	**$20,730.00**
Indirect Cost	**$0.00**
Grand Total	**$20,730.00**

VII. BUDGET NOTES

NSS YEAR 1 BUDGET NOTES		
CRSP Bean Technology Dissemination Associate Award		
(Feb 1, 2011 - September 30, 2011)		
A) Project Management		
Field agronomist activity coordinator	$0.00	NSS personnel is a leveraged contribution of the project
Managerial support by NSS offices	$0.00	To be provided by NSS office
Office equipment and communications (laptop, digital camera, GPS, cell phone communications)	$2,510.00	These expenses will be sourced in Haiti and are the sum of a laptop computer for the lead agronomist ($1400), a digital camera for use in the project ($300), three GPS receiver ($270). Cell phone communications are calculated at $80 per month for 7 months.
Sub Total	**$2,510.00**	
B) Objective 1, seed reproduction		
Supervision travel expenses	$6,800.00	$170/day for fuel and per diem expenses for 10 days for four months
Production of other bean varieties	$4,000.00	Production in four hectares calculated at $1000/ha including $250 of registered seed, $200 fertilizer, $325 in production labor and $225 for seed conditioning.
Sub Total	**$10,800.00**	
C) Objective 3, Sustainable seed distr.		
Supplies for evaluation of metal silos	$4,000.00	Two evaluation sites will be developed (four metal silos at $350 each ($1400); 10 supervision days for the four two sites at $170/day ($1700) and $450 per site for miscellaneous expenses such us purchase of seed, materials to secure silos and protect them from the rain ($900).
Supervision expenses for the production fields by Agrotechnique and other cooperating NGOs	$3,400.00	$170 per day for fuel and per diem for 10 days per month for two months. NSS is expected to visit production fields to check on the quality of seed being produced, which will be labeled under Pwa CRiSP.
Sub Total	**$7,400.00**	
D) Performance Monitoring		
Salaries & Fringes	$0.00	To be carried out by IICA
Personnel mobilization (hotel/per diem, car use and fuel	$0.00	To be carried out by IICA
Sub Total	**$0.00**	No expenses
Total Direct Expenses	**$20,710.00**	
	$0.00	No expenses
Indirect Cost	$0.00	NSS does not charge any indirect cost,

HONDURAS

EAP-Zamorano SOW

Strategic Investment in Rapid Technology Dissemination: Commercialization of Disease Resistant Bean Varieties in Guatemala, Nicaragua, Honduras and Haiti. **(Associate Award to the Dry Grain Pulses CRSP)** October 1, 2010 – September 28, 2013 **SCOPE of WORK**

Organization to be Sub-Contracted: Escuela Agricola Panamericana, Zamorano, Calle Pastizales, Bloque E, Casa No. 5, Residencial La Hacienda, P.O. Box 93, Tegucigalpa, Honduras.
Project Leader: Juan Carlos Rosas, Full Professor, Escuela Agricola Panamericana, Zamorano, 011 (504)2776-6140 Ext. 2314, Cell 011(504)9982-4931, jcrosas@zamorano.edu.

Administrative/Financial Officer for Organization: Roberto Cuevas García, Rector**,** Escuela Agricola Panamericana, Zamorano, Calle Pastizales, Bloque E, Casa No. 5, Residencial La Hacienda, P.O. Box 93, Tegucigalpa, Honduras, 011(504)2287-2000, rcuevas@zamorano.edu.
Collaborating Host Country Organizations:

Dirección de Ciencia y Tecnología Agropecuaria (DICTA), Ing. Geovany Pérez, Executive Director, Secretaría de Agricultura y Ganadería, Ave. La FAO, Blvd. Miraflores, Apartado Postal 5550, 011(504)2232-7982, fperez.dicta@gmail.com.

Programa de Reconstrucción Rural (PRR), Ing. Enrique Castillo, Director, La Buena Fe, Zacapa, Santa Bárbara, Apartado Postal 140, Honduras, 011(504)2715-0923 , castillo_prr@yahoo.es. Fundación para la Investigación Participativa con Agricultores de Honduras (FIPAH), Ing. José Jiménez, representante, Yorito, Yoro, Honduras, 011(504)2671-4091, fipahyorito@yahoo.es.

I. Rapid Bean Technology Dissemination Project Overview and Goals

As a result of long-term investments by USAID-Washington in collaborative research on dry grain pulses through the Bean/Cowpea and Dry Grain Pulses CRSPs, a significant number of improved bean varieties with higher yield potential and tolerance to biotic (diseases and pests) and abiotic (adaptation to poor soils, heat and drought) stresses than traditional varieties, have been released by the Escuela Agricola Panamericana-Zamorano and are currently registered for commercial production in Honduras and neighboring Central American countries. However, these improved varieties are not readily accessible to the majority of small-holder resource-poor bean producers, due to the low availability of quality seed of improved varieties locally and to affordably. The strengthening of local and formal seed systems, through the integration of key actors (public and private institutions to generate and transfer of agricultural technologies, farmer organizations and private companies) for the sustainable production of quality seeds would facilitate seed availability and dissemination of improved varieties in underserved regions countries such as Honduras, Guatemala and Nicaragua.

Bean production by small-holder bean farmers, however, is frequently carried out under sub-optimal conditions; marginal soils deficient in nitrogen, phosphorus and/or other nutrients needed for good crop development and productivity. The use of *Rhizobium* inoculants (to enhance biological nitrogen fixation) and of organic fertilizers produced locally has the potential to improve the nutritional status of the crop and increase bean productivity, thus enhancing the benefits derived from planting improved varieties.

A network of institutional partners in the Dry Grain Pulses CRSP within Central America and the Caribbean are positioned to respond with rapid deployment/dissemination of a bean productivity-enhancing technology package (which includes quality seed of improved varieties and *Rhizobium* inoculums) to resource-poor small-holder bean farmers in strategic regions of Guatemala, Honduras, Nicaragua and Haiti. The technology package will contribute to objectives of USAID"s Feed the Future initiative by increasing farm productivity and profitability, reducing food security vulnerability, improving household nutritional security by providing nutrient dense staples for local consumption, and improving to system sustainability.

Goals of the three-year "Rapid Bean Technology Dissemination" project for each participant host country include: (1) to make accessible a productivity enhancing technology package (i.e., quality seed of improved varieties, inoculants, etc.) to a total of 30,000 small-holder resource-poor bean farmers, (2) to increase the availability of nutritious bean/pulse grain in domestic markets at affordable prices so as to improve food and nutritional security of the rural and urban poor, and (3) and to implement sustainable bean seed systems with local farmer/community involvement so as to ensure long-term availability of "quality seed" of superior bean varieties beyond the life of the project.

III. Objectives of Sub-Project in Honduras

Objective 1. Develop sustainable national capacities for the production of quality seed of improved varieties of beans with the participation of organizations involved in local and formal systems.

Objective 2. Facilitate access of small farmers to improved varieties of beans through the dissemination of quality seed produced in target regions.

Objective 3. Develop national capacities for the production and use of *Rhizobium* inoculants, organic fertilizers and other agro-ecological management practices for the crop.

Objective 4. Monitor and evaluate the production of seed inoculants and organic fertilizers, the spread of these technologies and their contributions to the direct beneficiaries.

IV. Planned Activities in this Scope of Work for Year 1 (October 1, 2010 – September 30, 2011)

The leadership of the project in Honduras is vested in EAP/Zamorano as the lead institution, and more specifically on the Bean Research Program (PIF, acronymic in spanish) led by JC Rosas, the HC-PI of the project in Honduras. Through the PIF, EAP/Zamorano is responsible for coordinating, planning and implementing the work plan and for monitoring the use of funds allocated for these purposes. To accomplish this, EAP/Zamorano will sign agreements (sub-contracts) with the NGOs PRR and FIPAH. For the purposes activities to be undertaken by DICTA through its regional offices in the West and Olancho, MSU will sign a subcontract directly with the Executive Director of DICTA. As such, DICTA will be responsible for the management of funds received under the project. However, the MO of DGPC specifies in the sub-contract that for purposes of planning and implementation of activities, the responsibility for coordination of the project activities in Honduras lies with EAP/Zamorano as the lead institution for the project in this country.

For coordination and monitoring of project activities in Honduras, the project considers the hiring of a technician to support the project management as assistant to the HC-PI. Also, travel funds are allocated for monitoring and technical assistance to be used by the HC-PI working with technical leaders of Honduras and other participating countries. This travel budget will also cover costs associated to the participation in some training and scheduled events in these countries.

Activity 1: Production of genetic, foundation registered and qualified seed with national and local producers.

Seed production processes established by the Seed Law of each host country will be followed. Therefore, four categories of seed (genetic, foundation, registered and qualified) will be produced under the Honduras project. The categories of genetic and foundation seed will be produced by PIF in lots located on the Central Campus of EAP/Zamorano, following the procedures recommended for these seed categories. In addition to its use in project activities in Honduras, the production of genetic and foundation seed will include observance to the requirements of the institutions involved in projects in Nicaragua, Guatemala and Haiti.

Genetic seed. The amount of genetic seed to be produced will be at least 20 one-hundred-pound sacks (abbreviated cwt), as EAP/Zamorano must handle high quality, sufficient stocks of all varieties to be used in the project. For the production of genetic seed, the multiplication of individual plant progenies selected in uniform lots of each variety will be used. Through frequent visits to the field, there will be strict elimination of progenies that differ even in minimum details to varietal descriptors of each material, both at field level, as in the preparation stages of the seed.

Foundation seed (also known as basic seed). The amount of foundation seed produced the first year is at least 100 cwt. Seed of five varieties of red beans (Amadeus 77, DEORHO, Cardenal, Carrizalito, Tio Canela 75)) and four varieties of black beans (ICTA Ligero, ICTAZAM, Aifi Wuriti and XRAV40-4), developed with support from the Bean/Cowpea and Dry Grain Pulses CRSP, will be produced. These varieties are required for the project in the four target countries, according to producer demand. To meet the annual needs of each country and also to have an additional 20% to cover contingencies, at least 100 cwt of foundation seed production will be required. The estimated production of foundation seed is 20 cwt per manzana (1 manzana = 0.7 ha), after selection in the field and seed conditioning, which ensures high quality seed in this category.

Registered seed. This category comes from the multiplication of foundation seed and will be completed by Zamorano and DICTA, entities authorized to produce this category of seed in Honduras. This category of seed is to be provided to selected seed producers who will be responsible for producing the qualified seed (quality declared seed) to be distributed to the direct beneficiaries. Concerning registered seed production plans, the same production estimates per area used in foundation seed production (20 cwt per manzana) are forecasted since rigorous selection criteria in the field as well as during seed conditioning are applied in both seed categories. During the first year over 120 cwt of registered seed will be produced for use in qualified seed production of the varieties described in the five regions of Honduras.

Qualified Seed. This category is equivalent to certified seed in the formal system, but due to the need to streamline the process and in view of the limited capacity of the national office to meet the demand for certification requests, the production of qualified seed will not follow the formal certification process strictly. Nonetheless, production lots will be supervised and the recommended visits by technicians from the participating institutions will be carried out with the assistance of the EAP/Zamorano and DICTA. Seed producers will receive inputs (seed and fertilizer) and support to install irrigation systems, seed conditioning, and training in seed production and seed conditioning, and technical assistance in the stages of crop management, harvest and post-harvest.

Qualified seed production will be conducted in five regions: 1) Yojoa Lake Region (localities of the departments of Comayagua and Santa Barbara located around the lake), under the technical supervision of the PRR and organized in collaboration with farmers in CIALs (Local Agricultural

Research Committee); 2) Region Yorito-Sulaco-Victoria (municipalities of Yoro) and Vallecillo (in the department of Francisco Morazan), supervised by technicians from FIPAH and in collaboration with the Associations of CIALs of these areas; 3) Western Region (localities of the departments of Copán, Lempira and Ocotepeque) under the supervision of the Regional Office of DICTA-West and the collaboration of farmers in this region; 4) region of Olancho (localities from this department) under supervision of technicians from the Regional Office of DICTA-Olancho and in collaboration of farmers in this region, and 5) Region Yeguare River Basin (in areas of the departments of F. Morazan and El Paraiso), where the EAP/Zamorano is located, which will oversee this activity and with the cooperation of farmer CIALs from this region.

The required seed to be produced annually amounts to 2000 cwt to distribute 20 lb. bags of seed to 10,000 of pre-selected bean producers. An average production of 400 cwt per region is expected. An estimated 50% of the programmed production for the regions of Lake Yojoa and Yorito-Sulaco-Victoria/Vallecillo is scheduled for the summer of 2011 under irrigation (440 cwt in total). The rest will be produced during the first planting season (May - August). A rate of 20 cwt per manzana after seed selection and preparation is being used for production estimates. Technicians from Zamorano and the collaborating institutions will provide training and technical assistance to qualified seed producers (semillaristas) from the regions.

Activity 2. Distribution of seeds to 10,000 producers qualified for the dissemination of improved varieties in five regions of the country.

The seed distribution will be directed to qualified small-holder bean producers with limited resources in the five areas identified above. The selection of beneficiaries will be under the supervision of the collaborating institutions and producer organizations, local authorities, NGOs and other organizations involved in community development. This collaboration is necessary in order to facilitate the delivery of seed in a fair and impartial manner, and to the neediest beneficiaries. Information on beneficiary farmers (recipients of the technology package) will be collected and compiled including name, locality (village, town, municipality), and the name of the organization to which each beneficiary belongs. Additionally, contact organization (municipality, association of producers, NGO or other) will be recorded. In years two and three, this information will be useful in avoiding the distribution of seed to the same individuals thereby facilitating extension of the technology package to a broader population of farmers in Honduras. Seed packages will be identified with logos of the DGPC, USAID, Zamorano and collaborating institutions. A program brand such as “Frijol CRiSP- Semilla de Calidad” will be included in the package. The name of the variety, location and season of production and seed quality criteria (% germination and humidity) will be also included.

This year, bags of 20 lb. of seed will be delivered to 10,000 farmers at a rate of 2,000 bags per region. With qualified seed produced during the summer season (January to April) it is expected that the project will distribute seed during May to 50% of the beneficiaries in areas of Lake Yojoa and Yorito-Sulaco-Victoria/ Vallecillo. Consequently, farmers will be ready to use this seed in the first planting of 2011. The rest of the seed will be distributed in early September, for use by farmers assisted in the “postrera” planting season (the most important in planting area in Honduras).

Activity 3. Training of technicians and farmers in seed production, postharvest management, agronomic crop management and production and use of inoculants and organic fertilizers.

Three training courses for technicians involved in the production and distribution of seed will be conducted. These trainees will, in turn, train seed producers and the final beneficiaries. The courses will include trainees from Honduras, Nicaragua, Guatemala and Haiti. The central training topics in the first year will be seed production, crop management and seed preparation, which will be taught by staff of the PIF and Seed Unit of Zamorano. Two training courses for seed producers will be offered in every region by the technicians in Honduras with collaborating institutions and the support of the EAP/Zamorano.

During the first year, a training course for technical personnel from the target countries on *Rhizobium* technology will be imparted at the Biotechnology Laboratory of PIF/Zamorano. Also, a course on production and use of organic fertilizers and agro-ecological management of bean crop will be offered for technicians and farmer leaders in the Organic Farming Unit of the EAP/Zamorano. Courses for technicians and farmer leaders from Honduras, Nicaragua and Guatemala in Zamorano will have a maximum of 15 participants and an average duration of three days. In Honduras, 10 demonstration plots for seed producers will be established where field days will be carried out to show the use and benefits of inoculants in the production of beans. Over 300 doses of inoculant will be produced and distributed for use in the seed producer plots in Honduras, Nicaragua and Guatemala.

Activity 4. Baseline data collection from beneficiaries, monitoring and evaluation report of the first year.

In the first year data will be collected to establish the baseline at the start of the project gathering information during seed production and distribution to beneficiaries, using the formats and following the recommendations of the MO developed by Dr. Mywish Maredia. EAP/Zamorano will collect information to support the partners in each region, which will require the hiring of a qualified and experienced staff from the M&E unit of the EAP-Zamorano Agribusiness Department.

V. Implementation Timeline:

ACTIVITY	**Year 1 (October 10 - Sep 11)**										
	O	**N**	**E**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**
PLANNING											
MSU Signs Agreement / EAP			4	2							
Subcont. EAP / Partners				4	2						
SEED PRODUCTION											
Foundation	2	x	4								
Registered			2	x	x	x	1				
Qualified							4	x	x	4	
Genetic							4	x	x	4	
Foundation							4	x	x	4	
SEED DISSEMINATION											
Western Region											2
Lake Yojoa							3				2
Yoro and F. Morazan							3				2

ACTIVITY	Year 1 (October 10 - Sep 11)										
	O	N	E	F	M	A	M	J	J	A	S
Olancho											2
Yeguare Valley											2
RHIZOBIUM AND OTHER TECH											
Inoculant production						1	1			1	1
Demonstration plots							4	x	x	2	4
Commercial plots											4
TRAINING											
Seed production						2					
Post Harvest Management							1				
Agronomic Management										1	
Inoculant production										2	
Organic fertilizer production						2					
MONITORING											
Baseline					2	x	2				
Annual Report											2
ADMINISTRATIVE REPORTS											
Annual											4
1, 2, 3.4 are weeks of the month; x means that the activity continues until the week / month indicated.											

VIII. Leveraged Resources:

EAP-Zamorano: Greenhouses, experimental and field plots for genetic and foundation seed production; areas for processing, seed drying and storage on the EAP campus. Time of the HC-PI invested in project coordination and supervision of activities of seed production and distribution to beneficiaries, and monitoring and evaluation activities. Laboratory equipment and areas for inoculant production and *Rhizobium* technology training; use of the Organic Farming Unit, with organic crop production lots and areas of production of fertilizers and organic products, for training.

DICTA: Production lots and areas for drying, packaging and storage of basic and registered seed stations. Technical personnel for monitoring and technical support for qualified seed production with farmers and monitoring of seed distribution to beneficiaries, and monitoring and evaluation activities. Vehicles to transport technicians and trainers. Administration of funds allocated to DICTA for this project.

PRR: technical personnel for supervision and technical support of the qualified seed production with farmers and seed distribution to beneficiaries, and monitoring and evaluation activities. Vehicles to transport technicians and trainers. Administration of funds allocated to PRR for this project.

FIPAH: technical personnel for supervision and technical support from qualified seed production with farmers and seed distribution to beneficiaries, and monitoring and evaluation activities. Vehicles to transport technicians and trainers. Administration of funds allocated to FIPAH for this project.

The table below summarizes the contributions leveraged from Zamorano and partners in Honduras participating in the project.

Contributions from organizations participating in the BTD/DGPC Project- Honduras (Year 1)

Categoría	Zamorano	DICTA	PRR	FIPAH
Salaries & Benefits	16,500	14,000	5,000	5,000
Travel	2,000	1,000	1,000	1,000
Transportation	1,500	1,500	1,500	1,500
Training	10,000	5,000	5,000	5,000
Other direct costs	2,400	5,000	2,400	2,400
Total direct costs	32,400	26,500	14,900	14,900
Indirect costs	29,250	9,480	0	0
Total by organization	61,650	35,980	14,900	14,900
Total Honduras	**$ 127,430**			

Salaries and benefits

Zamorano: HC-PI (0.15 FTE= $9,300), field and lab technicians (2 x 0.20 FTE= $2,700), secretary (0.20 x FTE= $1,500), accountant (0.2 FTE= $ 1,500), driver (0.20 FTE= $1,500). PRR: Field supervisor (technician at 0.5 FTE= $4,000), secretary (0.2 FTE= $1,000) FIPAH: Field supervisor (technician at 0.5 FTE= $4,000), secretary (0.2 FTE= $1,000)

Travel

Travel expenses of technical personnel other than those involved directly to provide technical assistance, training and supervision of seed production, handling and distributions (expenses paid by organizations).

Transportation

Use of vehicles from participating organizations on field visits to seed production plots and processing sites, and seed distribution (no rental charges for using these vehicles). Estimating on 6,000 km/year at a rate of $0.25/km.

Training

Short courses on bean production, seed production and conditioning, postharvest technology, management of small seed enterprises, and other related courses funded with other sources. Estimates are from 5 courses by region, for 15 participants and for two days; cost per course at Zamorano is estimated at $2,000 and in the regions at $1,000.

Other direct costs

Use of office space, computer, copier and others; lab space and equipment; field plots and irrigation equipment; access to phone, internet and other facilities. Estimated at $2,400/year for each organization.

Indirect Costs

Zamorano: 15% differential from EAP 30% institutional indirect cost.
DICTA: No charge for indirect costs (15%).

IX. Gender Equity:

Ensuring gender equity in the selection of technologies for dissemination as well as for ensuring that women have access to the technologies being disseminated so as to improve their livelihoods will be a priority of this project. Since women‟s involvement in bean production varies significantly among different bean production areas in the target countries, the gender equity activities will need to be contextualized for each area where the bean technology package is disseminated. The distinct dimensions of the roles of rural men and women relative to bean production, household food security, and handling and marketing of grain will be considered for each of the target areas and the appropriate dissemination strategies developed in accord with these roles.

To ensure that these gender equity issues are adequately addressed, the project will consult with a gender specialist from the Escuela Agricola Panamericana- Zamorano when designing and implementing technology dissemination strategies so as to ensure that women will have equal access as male farmers to the improved bean technology package. In addition, the differential effects of interventions on the welfare of both women and men will be documented for monitoring and assessment of project performance.

In particular, consideration will be given selecting small red and black bean types that are not only highly productive (thus maximizing the return on the investment of a women‟s time to produce food), but also varietal traits that will not demand additional inputs for management of the crop. As example, disease resistance in improved varieties reduces the need for farmers (which include women) to purchase and apply costly and potentially harmful (to human health) fungicides, bactericides and insecticides, to control vectors of plant viruses. The use of *Rhizobium* inoculants should also be considered as benefitting women as it reduces the need for the purchase of synthetic and costly nitrogen fertilizers.

Priority is given to women's participation in the production and packaging of seeds and inoculants and their distribution, and particularly as a direct beneficiary. The project will build on the gender unit of DICTA and EAP/Zamorano. The CIALs of Lake Yojoa, Yorito-Sulaco-Victoria/ Vallecillos include several women among their members; in some groups, members are predominantly women and/or women have a leadership role among the groups. Emphasis will be given to women participation at the farm that will be compatible to their rural customs and traditions such as seed classification and storage. A record of beneficiaries in each technology classified by gender will be kept. It is expected among beneficiaries over 10% will be women.

X. Cost Application:

CRSP BeanTechnology Dissemination Associate Award Budget by collaborator- Year 1 (October 1, 2010 - September 30, 2011)				
	Total	Zamorano*	PRR	FIPAH
Institution Name: EAP-Honduras				
A) Project Management				
Salaries & Fringes	$12,000.00	$12,000.00	$0.00	$0.00
Equipment & Supplies	$2,000.00	$2,000.00	$0.00	$0.00
Travel	$12,000.00	$12,000.00	$0.00	$0.00
Sub Total	**$26,000.00**	**$26,000.00**	**$0.00**	**$0.00**
B) Objective 1- Seed production				
Salaries & Fringes	$29,000.00	$20,000.00	$4,500.00	$4,500.00
Equipment & Supplies	$24,000.00	$12,000.00	$6,000.00	$6,000.00
Travel	$3,000.00	$1,000.00	$1,000.00	$1,000.00
Training	$10,000.00	$8,000.00	$1,000.00	$1,000.00
Contracted Services	$36,000.00	$12,000.00	$12,000.00	$12,000.00
Sub Total	**$102,000.00**	**$53,000.00**	**$24,500.00**	**$24,500.00**
C) Objective 2- Seed Handling/Dist.				
Salaries & Fringes	$8,000.00	$8,000.00	$0.00	$0.00
Equipment & Supplies	$8,000.00	$4,000.00	$2,000.00	$2,000.00
Travel	$3,000.00	$1,000.00	$1,000.00	$1,000.00
Training	$5,000.00	$3,000.00	$1,000.00	$1,000.00
Contracted Services	$6,000.00	$2,000.00	$2,000.00	$2,000.00
Sub Total	**$30,000.00**	**$18,000.00**	**$6,000.00**	**$6,000.00**
D) Objective 3- Rhizobium & others				
Salaries & Fringes	$12,000.00	$12,000.00	$0.00	$0.00
Equipment & Supplies	$12,000.00	$12,000.00	$0.00	$0.00
Training	$3,000.00	$3,000.00	$0.00	$0.00
Contracted Services	$0.00	$0.00	$0.00	$0.00
Sub Total	**$27,000.00**	**$27,000.00**	**$0.00**	**$0.00**
E) Performance Monitoring				
Salaries & Fringes	$8,000.00	$8,000.00	$0.00	$0.00
Travel	$2,000.00	$2,000.00	$0.00	$0.00
Sub Total	**$10,000.00**	**$10,000.00**	**$0.00**	**$0.00**
Total Direct Expenses	**$195,000.00**	**$134,000.00**	**$30,500.00**	**$30,500.00**
Indirect Cost 15%	**$29,250.00**	**$20,100.00**	**$4,575.00**	**$4,575.00**
Grand Total	**$224,250.00**	**$154,100.00**	**$35,075.00**	**$35,075.00**

* Incluye fondos para producción/distribución de semilla en región del Yeguare supervisado por Zamorano directam
Zamorano subcontratará la participación de PRR y FIPAH.
La participación del DICTA se manejará mediante un subcontrato separado con el Proyecto BTD/DGPC (MSU).

Budget Narrative

CRSP Bean Technology Dissemination Associate Award			
Budget by collaborator- Year 1 (October 1, 2010 - September 30, 2011)			
	AMOUNT	**DESCRIPTION OF EXPENSES**	**DETAILED INFORMATION**
A) Project Management			
Salaries & Fringes	$ 12,000.00	Funds will be used to hire a research assistant ($12,000) to assist the HC- PI on the management of the project and supervision of activities in different locations.	$750/month x 14 months/year (2 extras salaries/year by law) x 20% benefits (medical insurance, living accommodation and others).
Equipment & Supplies	$ 2,000.00	Purchase of computer ($800), scanner ($200), GPS ($200), office supplies, and printed materials and documents for the project technology dissemination $800.	OK
Travel	$ 12,000.00	Expenses are based on two annual visits of the HC-PI to Nicaragua and Guatemala ($ 900 x 4= $ 3,600), and one to Haiti ($1600), as part of his technical assistance responsibility to the project; and two monthly visits within Honduras of the HC-PI and/or his RA (24 x $200= $4800), to supervise and assist collaborators on seed production and distribution of improved cultivars, and dissemination of rhizobium and other technologies. Also include participation of the HC-PI and two collaborators to regional meetings and interaction with technicians and researchers from other countries involved in the project and other participating in similar projects ($2000).	OK
Sub Total	**$ 26,000.00**		
B) Objective 1- Seed production			

CRSP Bean Technology Dissemination Associate Award			
Budget by collaborator- Year 1 (October 1, 2010 - September 30, 2011)			
	AMOUNT	**DESCRIPTION OF EXPENSES**	**DETAILED INFORMATION**
Salaries & Fringes	$ 29,000.00	Funds will be used to hire field workers to produce and conditioning genetic and foundation seed at Zamorano (4 workers x $ 5,000), and one technician for technical assistance by PRR in the Yojoa Lake and FIPAH in Yorito/Vallecillo ($4500 each).	$300/month x 14 months + 20% benefit at Zamorano; $270/month x 14 months + 20% benefit at the Yojoa Lake and Yorito/Vallecillo sites.
Equipment & Supplies	$ 24,000.00	The purchase of two motorcycles are included in the PRR and FIPAH budgets for Year 1 (at $3,000 each, = $6000); these vehicles are necessary to provide technical assistance to farmers located at mountains sites of difficult access. Purchase of field supplies (fertilizer, pesticides), irrigation pipes and accessories, and tools for plot maintenance; bags for harvest, transportation and storage of seed, and purchase of other materials and supplies for a total of $18000	Field supplies: $12,000; irrigation accessories and tools for field maintenance: $2,000; bags for harvest, transportation and storage seed: $2,000; Other M&S: $2,000.
Travel	$ 3,000.00	Travel costs of technical personnel of collaborating institutions to provide technical assistance and supervise seed production, and training courses or field days.	$100/day x 30 days
Training	$ 10,000.00	Funds for transportation, lodging and meals, and other training costs for two courses on seed production for technicians at Zamorano; and training events (practical training, field days and others) for farmers and technicians at the seed production sites.	Three training courses at Zamorano at $2700 each (6 technicians x $80/day x 3 days + $1060 transportation + $200 materials and supplies) and two curses at each site at $ 450/course for meals and local transportation

CRSP Bean Technology Dissemination Associate Award			
Budget by collaborator- Year 1 (October 1, 2010 - September 30, 2011)			
	AMOUNT	**DESCRIPTION OF EXPENSES**	**DETAILED INFORMATION**
Contracted Services	$ 36,000.00	Funds will be used for seed production with collaborating institutions and farmer organizations in three target regions. Expenses will include the purchase of field materials and supplies, irrigation systems, costs of land preparation, crop maintenance, harvest, transportation, conditioning and storage of seed.	$12,000/region x 3 regions, Yojoa Lake, Yorito/Vallecillo and Yeguare (field supplies: $6,000; irrigation costs: $2,000; land preparation: $1,000; crop maintenance: $2,000; harvest: $1,000).
Sub Total	**$ 102,000.00**		
C) Objective 2- Seed Handling/Dist.			
Salaries & Fringes	$ 8,000.00	Funds will be used to hire two workers for conditioning and storage of genetic and foundation seed, and to assist with packaging and label seed at different sites (2 x $4000).	$300/month x 11 months + 20% benefits
Equipment & Supplies	$ 8,000.00	Storage facilities (10 silos at 100 each= $1000; 3 cocoons at $600 each= $1,800; seed drying patios= 3 x $250= $750); paper seed bags (10,000 x $ 0.35 each), packaging supplies (bags for handling seed, markers, tape, tread and others: $500) and equipment (scales:$200 x 3 = $600; bag sewing machine: $200 x 3 = $600) and other supplies ($450) to be used at the Lago Yojoa, Yorito/Vallecillo and Yeguare regions	
Travel	$ 3,000.00	Expenses for visiting sites and identifying seed beneficiaries, interactions with collaborating organizations for seed distribution, and distribution of seed packages.	Travel expenses at $100/day x 30 days

CRSP Bean Technology Dissemination Associate Award Budget by collaborator- Year 1 (October 1, 2010 - September 30, 2011)			
	AMOUNT	**DESCRIPTION OF EXPENSES**	**DETAILED INFORMATION**
Training	$ 5,000.00	Funds for transportation, lodging and meals, and other training costs for one course on seed conditioning and postharvest management for technicians at Zamorano.	One training course at Zamorano at $3000 (6 technicians x $80/day x 3.5 days + $1200 transportation + $120 materials and supplies) and two courses at each site at $ 500/course for meals and local transportation
Contracted Services	$ 6,000.00	Cleaning and conditioning of seed in three target regions.	Cleaning and conditioning of 1200 ctw (3 x 400 ctw per region) at $5/ctw
Sub Total	**$ 30,000.00**		
D) Objective 3- Rhizobium & others			
Salaries & Fringes	$ 12,000.00	Funds will be used to hire two field workers and one lab worker to produce Rhizobium inoculants and isolation, maintenance and conservation of the strains collection.	$300/month x 11 months + 20% benefits
Equipment & Supplies	$ 12,000.00	Purchase of laboratory equipment ($ 8000 for incubator, shaker, hot plates, isolation chamber an others) and reagents and supplies ($4000) for inoculant production and training courses.	OK
Training	$ 3,000.00	Funds will be used for transportation, lodging and meals, and other training costs for one course on *Rhizobium* technology and inoculant production for technical personnel of collaborating institutions and field events (validation trials and field days) in target regions.	30 days x $100/day
Sub Total	**$ 27,000.00**		
E) Performance Monitoring			

CRSP Bean Technology Dissemination Associate Award			
Budget by collaborator- Year 1 (October 1, 2010 - September 30, 2011)			
	AMOUNT	**DESCRIPTION OF EXPENSES**	**DETAILED INFORMATION**
Salaries & Fringes	$ 8,000.00	To hire a part time technical assistance to collect, process and analyze information on the project activities, technology dissemination and contributions to direct beneficiaries.	$800/month x 8 months + 20% benefits
Travel	$ 2,000.00	Funds to collect information and record the development of project activities in the target regions.	20 days x $100/day
Sub Total	**$ 10,000.00**		
Total Direct Expenses	**$ 195,000.00**		
Indirect Cost 15%	**$ 29,250.00**	Institutional rate of 15% of total direct expenses for Zamorano, PRR and FIPAH.	OK
Grand Total	**$ 224,250.00**		

DICTA SOW

Strategic Investment in Rapid Technology Dissemination: Commercialization of Disease Resistant Bean Varieties in Guatemala, Nicaragua, Honduras and Haiti. **(Associate Award to the Dry Grain**

Pulses CRSP) February 1, 2010 – September 28, 2013 **SCOPE of WORK**

Organization to be Sub-Contracted: Direcciónde Ciencia y Tecnología Agropecuaria (DICTA), Secretaría de Agricultura y Ganadería, Ave. La FAO, Blvd. Miraflores, Apartado Postal 5550, Tegucigalpa, Honduras.

Project Leaders: Narcizo Meza Linares (narcizo_meza@hotmail.com) and Ing. Misael Espinoza, DICTA, Secretaría de Agricultura y Ganadería, Ave. La FAO, Blvd. Miraflores, Apartado Postal 5550, Tegucigalpa, Honduras.

Co-Project Leader: Juan Carlos Rosas, Professor, Escuela Agricola Panamericana, Zamorano, 00 (504)2776-6140 Ext. 2314, Cell 00 (504)9982-4931, jcrosas@zamorano.edu.

Administrative/Financial Officer for Organization: Mrs. Ana Dunnaway, Dirección de Ciencia y Tecnología Agropecuaria (DICTA), Secretaría de Agricultura y Ganadería, Ave. La FAO, Blvd. Miraflores, Apartado Postal 5550, Tegucigalpa, Honduras, 00 (504)2232-7982, fperez.dicta@gmail.com.

Collaborating Host Country Organizations:
Escuela Agrícola Panamericana (EAP), Zamorano, Calle Pastizales, Bloque E, Casa No. 5, Residencial La Hacienda, Tegucigalpa, Honduras.

I. Rapid Bean Technology Dissemination Project Overview and Goals

As a result of long-term investments by USAID-Washington in collaborative research on dry grain pulses through the Bean/Cowpea and Dry Grain Pulses CRSPs, a significant number of improved bean varieties with higher yield potential and tolerance to biotic (diseases and pests) and abiotic (adaptation to poor soils, heat and drought) stresses than traditional varieties, have been released by the Escuela Agricola Panamericana (EAP)-Zamorano and are currently registered for commercial production in Honduras and neighboring Central American countries. However, these improved varieties are not readily accessible to the majority of small-holder resource-poor bean producers, due to the low availability of quality seed of improved varieties locally and to affordably. The strengthening of local and formal seed systems, through the integration of key actors (public and private institutions to generate and transfer of agricultural technologies, farmer organizations and private companies) for the sustainable production of quality seeds would facilitate seed availability and dissemination of improved varieties in underserved regions countries such as Honduras, Guatemala and Nicaragua.

Bean production by small-holder bean farmers, however, is frequently carried out under sub-optimal conditions; marginal soils deficient in nitrogen, phosphorus and/or other nutrients needed for good crop development and productivity. The use of *Rhizobium* inoculants (to enhance biological nitrogen fixation) and of organic fertilizers produced locally has the potential to improve the nutritional status of the crop and increase bean productivity, thus enhancing the benefits derived from planting improved varieties.

A network of institutional partners in the Dry Grain Pulses CRSP within Central America and the Caribbean are positioned to respond with rapid deployment/dissemination of a bean productivity-enhancing technology package (which includes quality seed of improved varieties and *Rhizobium* inoculums) to resource-poor small-holder bean farmers in strategic regions of Guatemala, Honduras, Nicaragua and Haiti. The technology package will contribute to objectives of USAID‟s Feed the Future initiative by increasing farm productivity and profitability, reducing food security vulnerability, improving household nutritional security by providing nutrient dense staples for local consumption, and improving to system sustainability.

Goals of the three-year "Rapid Bean Technology Dissemination" project for each participant host country include: (1) to make accessible a productivity enhancing technology package (i.e., quality seed of improved varieties, inoculants, etc.) to a total of 30,000 small-holder resource-poor bean farmers, (2) to increase the availability of nutritious bean/pulse grain in domestic markets at affordable prices so as to improve food and nutritional security of the rural and urban poor, and (3) and to implement sustainable bean seed systems with local farmer/community involvement so as to ensure long-term availability of "quality seed" of superior bean varieties beyond the life of the project.

IV. Objectives of Sub-Project in Honduras

Objective 1. Develop sustainable national capacities for the production of quality seed of improved varieties of beans with the participation of formal systems and local farmer organizations.

Objective 2. Facilitate access of small farmers to improved varieties of beans through the dissemination of quality seed produced in target regions.

Objective 3. Develop national capacities for the production and use of *Rhizobium* inoculants, organic fertilizers and other agro-ecological management practices for the crop.

Objective 4. Monitor and assess performance regarding the production of Qualified bean seed, *Rhizobium* inoculants, and organic fertilizers, the dissemination of these technologies and their impact on beneficiaries, and on national bean production.

III. Planned Activities in this Scope of Work for Year 1 (October 1, 2010 – September 30, 2011)

The leadership of this project in Honduras is vested in EAP/Zamorano as the "Lead" institution, and more specifically in the Bean Research Program (PIF, acronymic in Spanish) led by Dr. Juan Carlos Rosas, the "Lead" HC-PI for the project in Honduras. Through the PIF, EAP/Zamorano is responsible for coordinating, planning and implementing the work plan and for monitoring the use of funds allocated for these purposes. To accomplish these tasks, EAP/Zamorano will sign a sub-contract with Michigan State University (the Management Entity for the Leader Award for the Dry Grain Pulses CRSP) as well as will establish sub-sub-contracts with the NGOs "PRR" and "FIPAH".

To support the activities to be undertaken in the regions of the "Occidente" (Western) and Olancho, Honduras, Michigan State University will establish a sub-contract directly with the Dirección de Ciencia y Tecnología Agropecuaria (DICTA). The Director Ejecutivo of DICTA will be the signatory and Ing. Narcizo Meza Linares will serve as the Co-PI on behalf of DICTA for the project in Honduras. DICTA will receive and be responsible for the management of funds that support project activities to be carried out through DICTA‟s Regional Offices in the Occidente and Olancho. However, the Escuela Agricola Panamericana-Zamorano will have

designated primary responsibility for the planning and coordination of activities associated with implementation of the overall project in Honduras.

The distinct responsibilities and activities to be carried out by DICTA during Year 1 of the project (October 1, 2010 – September 30, 2011) are specified and described in the following "Activity" sections.

Activity 1: Production of registered and qualified seed with national and local producers.

Seed production processes established by the Seed Law of Honduras will be followed. Therefore, four categories of seed registered and qualified will be produced under the Honduras project. The categories of genetic and foundation seed will be produced by PIF in lots located on the Central Campus of EAP/Zamorano, following the procedures recommended for these seed categories. During Year 1 (2011), DICTA will be responsible for reproducing "Qualified Seed" of selected improved small-red bean varieties (as identified in the sub-contract with EAP-Zamorano) in accord with the following criteria and required amounts for dissemination.

Qualified Seed. This category is equivalent to "certified seed" in the formal system, but due to the need to streamline the process and in view of the limited capacity of the national office to meet the demand for certification requests, the production of "qualified seed" will not follow the formal certification process strictly. Nonetheless, production lots will be supervised and the recommended visits by technicians from the participating institutions will be carried out with the assistance of the EAP/Zamorano and DICTA to ensure that the seed quality expectations are achieved. Seed producers will receive inputs (seed and fertilizer) and support for irrigation, seed conditioning, training in seed production and seed conditioning, and technical assistance at critical stages of crop management, harvesting and post-harvest handling.

Qualified seed production under DICTA supervision will be conducted in two regions: 1) "Occidente" (Departments of Copán, Lempira and Ocotepeque) under the supervision of the Regional Office of DICTA-Occidente with the collaboration of farmers in this region; and in 2) the Department of "Olancho" under the supervision of technicians from the Regional Office of DICTA-Olancho and with the collaboration of farmers in this area.

The total required amount of Qualified seed to be produced in Year 1 of the project by DICTA is 600 cwt (equivalent to 60,000 lbs.); 200 cwt for the region of Olancho and 400 for the Occidente. This seed is to be packaged in labeled 20 lb. bags for distribution to 3,000 pre-selected bean farmers during the first year. The seed will be produced during the growing season of May - August. A rate of 20cwt produced per manzana (one manzana= 0.7 ha) after seed selection and preparation is being used for production estimates. Technicians from DICTA and collaborating institutions will provide training and technical assistance to qualified seed producers ("semilleristas") in the two respective regions of Honduras.

The qualified seed produced by the selected farmers will be bought by DICTA at market prices. The identified producer in year 1 will not necessarily be the same in years 2 and 3 for it is the interest of DICTA that more producers become familiar with the target varieties and are subject to the training provided with the support of the project. This seed will be distributed among the commercial farmers to disseminate the improve varieties. It is important to outline that the beneficiaries in year one will be trained to preserve the genetic quality of the seed delivered for use in subsequent years. This way, in years 2 and 3 different beneficiaries will be reached with the same methodology. This way, DICTA plans to expand the potential of the project by passing on good improved seed production and conservation practices for years ahead.

Actvity2.Distribution of the qualified seed of improved bean varieties and *Rhizobium* to 3,000 small-holder farmers in two regions of the country.

The distribution of the Bean Technology Package (Qualified Seed of improved CRSP bean varieties and *Rhizobium* inoculants) will be directed to selected small-holder resource-poor bean producers in the two regions identified under Activity 1 (Departments of Copán, Lempira, Ocotepeque and Olancho). The selection of beneficiaries will be under the supervision of the institutions and producer organizations collaborating with DICTA, local authorities, NGOs and other organizations involved in community development. This collaboration is necessary in order to facilitate the delivery of seed in a fair and impartial manner, and to the neediest beneficiaries. Information on beneficiary farmers (recipients of the technology package) will be collected and compiled including name, locality (village, town, municipality), and the name of the organization to which each beneficiary belongs. Additionally, contact organization (municipality, association of producers, NGO or other) will be recorded. In Years 2 and 3 of the project, this information will be useful in avoiding the distribution of seed to the same individuals thereby ensuring that the technology package is extended to a broader population of farmers in Honduras. Seed packages will be developed with logos of the DICTA, DGPCRSP, USAID, EAP-Zamorano and collaborating institutions. A program brand, "Frijol CRiSP- Semilla de Calidad", will be placed on the package. The name of the improved variety, location and season of production and seed quality criteria (% germination, humidity, etc.) will be also included.

For Year 1 (October 1, 2010 – September 30, 2011), bags of 20lb of seed will be delivered to 3,000 farmers at an approximate rate of 1,000 bags for the region of Olancho and 2,000for the Occidente. Qualified seed will be distributed in early September for planting by farmers during the "postrera" season (the most important production period for beans in these two regions of Honduras).

Distribution		
Department	**qq**	**Person**
Olancho	**200**	**1000**
Copan	**150**	**750**
Lempira	**150**	**750**
Ocotepeque	**100**	**500**
Total	**600**	**3000**

Activity 3. Training of technicians and farmers in seed production, postharvest management, agronomic crop management and production and use of inoculants and organic fertilizers.

DICTA personnel involved in the project will participate in training courses offered by EAP/Zamorano for technicians involved in the production and distribution of seed in the project. DICTA trainees will, in turn, be responsible for training seed producers and the ultimate beneficiary farmers. The principle topics of the "capacitation" courses during the first year will be seed production, crop management and seed preparation. These courses will be taught by staff of the PIF and Seed Unit of EAP/Zamorano. Two training courses for seed producers will be offered in the two regions by DICTA in collaboration from the EAP/Zamorano.

During Year 1, DICTA personnel will participate in a training course on *Rhizobium* technology to be imparted at the Biotechnology Laboratory of PIF/Zamorano. Also, they will participate in a course on the production and use of organic fertilizers and on agro-ecological management of the

bean crop that will be offered for technicians and farmer leaders by the Organic Farming Unit of the EAP/Zamorano. At least two demonstration plots for seed producers, in each of the two regions supervised by DICTA, will be established. Farmer Field days will be carried out to show the use and benefits of inoculants in the production of beans.

Activity 4.Baseline data collection from beneficiaries, monitoring and evaluation report of the first year.

DICTA will also receive project funds to collect information using the M & E format developed by Michigan State University to monitor performance; the production and dissemination of Qualified Seed of improved bean varieties to small-holder resource-poor farmers in the two designated regions of Honduras (Occidente and Olancho) under its responsibility. The information will be shared with EAP/Zamorano for integration into a data base that includes performance information from all five regions of Honduras that has been targeted under the project. During Year I, data will be collected to establish the baseline at the start of the project. This will include information to be collected during seed production and distribution to beneficiaries, using the formats and following the recommendations developed by Dr. Mywish Maredia. DICTA will be solely responsible for the collection of data for the regions of the Occidente and Olancho and for presenting this in an appropriate format to the EAP/Zamorano.

VI. Implementation Timeline:

ACTIVITY	**Year 1 (October 10 - Sep 11)**										
	O	**N**	**E**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**
PLANNING											
MSU Signs Agreement / DICTA					2						
SEED PRODUCTION											
Registered											
Qualified							4	x	x	4	
SEED DISSEMINATION											
Western Region											2
Olancho											2
RHIZOBIUM AND OTHER TECH											
Demonstration plots							4	x	x	2	4
TRAINING participation											
Seed production						2					
Post-Harvest Management							1				
Agronomic Management										1	
Inoculants production										2	
Organic fertilizer production						2					
MONITORING											
Baseline					2	x	2				
Annual Report											2
ADMINISTRATIVE REP.											
Annual											4

1, 2, 3.4 are weeks of the month; x means that the activity continues until the week / month indicated.

XI. Outputs/Deliverables for Assessment of Technical Progress:

The outputs and deliverables shall be monitored following the schedule of financial disbursements as follows.

University shall pay collaborator according to the following schedule:

Payment 1) University will issue an advance payment of Forty Three Thousand Five Hundred Five Dollars U.S. ($18.960.00 US) upon full execution of this Agreement. (30% of Year one Budget)

Payment 2) Milestone/deliverable, etc.: Basic seed delivered to producers for multiplication
Payment: One week after confirmation of the Second Deliverable)
Amount: Twelve-thousand, six-hundred and forty ($18,960.000 US) (30% of Year one (2/1/11-9/30/11) approved budget).

Payment 3) Milestone/deliverable, etc.: Project report on progress outlining evidence of production of qualified seed and completion of training activities scheduled up to the end of July 2011

Due Date: August 8, 2011

Payment: One week after confirmation of the Third Deliverable.
Amount: Twelve-thousand, six-hundred and forty ($12,640 US) (20% of Year one (2/1/11-9/30/11) approved budget). (20% of Year One (2/1/11-9/30/11) approved budget.

Payment 4) Milestone/deliverables, etc.

1- Monitoring and performance data

2- The submission of the performance monitoring and evaluation data gathered according to Objective 4 of Year 1.

3- A Scope of Work and Budget for activities to be carried out by ICTA in Year 2 of the project (10/1/11-9/30/12).

Due Date: By September 15, 2011
Payment: One week after confirmation of the Fourth deliverable

Amount: Twelve-thousand, six-hundred and forty ($12,640 US) (20% of Year one (2/1/11-9/30/11) approved budget). (20% of Year One (2/1/11-9/30/11) approved budget).

VI. Leveraged Resources:

DICTA: Production lots and areas for drying, packaging and storage of basic and registered seed stations. Technical personnel for monitoring and technical support for qualified seed production with farmers and monitoring of seed distribution to beneficiaries, and monitoring and evaluation activities. Vehicles to transport technicians and trainers. Administration of funds allocated to DICTA for this project.

See table of DICTA´s contributions to the project.

VII. Gender Equity:

Ensuring gender equity in the selection of technologies for dissemination as well as for ensuring that women have access to the technologies being disseminated so as to improve their livelihoods will be a priority of this project. Since women‟s involvement in bean production varies significantly among different bean production areas in the target countries, the gender equity activities will need to be contextualized for each area where the bean technology package is disseminated. The distinct dimensions of the roles of rural men and women relative to bean production, household food security, and handling and marketing of grain will be considered for each of the target areas and the appropriate dissemination strategies developed in accord with these roles.

To ensure that these gender equity issues are adequately addressed, the project will consult with a gender specialist from DICTA when designing and implementing technology dissemination strategies so as to ensure that women will have equal access as male farmers to the improved bean technology package. In addition, the differential effects of interventions on the welfare of both women and men will be documented for monitoring and assessment of project performance.

In particular, consideration will be given selecting small red and black bean types that are not only highly productive (thus maximizing the return on the investment of a women‟s time to produce food), but also varietal traits that will not demand additional inputs for management of the crop. As example, disease resistance in improved varieties reduces the need for farmers (which include women) to purchase and apply costly and potentially harmful (to human health) fungicides, bactericides and insecticides, to control vectors of plant viruses. The use of *Rhizobium* inoculants should also be considered as benefitting women as it reduces the need for the purchase of synthetic and costly nitrogen fertilizers.

Priority is given to women's participation in the production and packaging of seeds and inoculants and their distribution, and particularly as a direct beneficiary. The project will build on the gender units of DICTA and EAP/Zamorano. Emphasis will be given to women participation at the farm that will be compatible to their rural customs and traditions such as seed classification and storage. A record of beneficiaries in each technology classified by gender will be kept. It is expected among beneficiaries over 10% will be women.

IX. Cost Application:

Institution Name: DICTA/SAG- Honduras	
	Budget Year 1
A) Project Management	
Salaries & Fringes	$0.00
Equipment & Supplies	
	$800.00
	$400.00
	$400.00
	$300.00
Sub Total	**$1,900.00**
B) Objective 1- Seed production	
Salaries & Fringes	$0.00

Institution Name: DICTA/SAG- Honduras	
Equipment & Supplies	
	5000
	3300
Travel	
	1,000.000
	1,500.000
Training	$1,000.00
Contracted Services	$46,057.00
Sub Total	**$57,857.00**
C) Objective 2- Seed Handling/Distribution	
Salaries & Fringes	$0.00
Equipment & Supplies	
Travel	$1,000.00
Training	$1,500.00
Contracted Services	$318.00
Sub Total	**$2,818.00**
D) Objective 3- Rhizobium & others	$0.00
Salaries & Fringes	$0.00
Equipment & Supplies	$0.00
Training	$0.00
Contracted Services	$0.00
Sub Total	**$0.00**
E) Performance Monitoring	
Salaries & Fringes	
Travel	$625.00
Sub Total	**$625.00**
Total Direct Expenses	**$63,200.00**
Indirect Cost	**$0.00**
Grand Total	**$63,200.00**

X. Budget Narrative

Institution Name: DICTA/SAG- Honduras		Detailed Budget Notes
	Budget Year 1	
A) Project Management	-	
Salaries & Fringes	-	
Equipment & Supplies	-	
	-	
	800.00	2 Computers
	400.00	2 GPS
	400.00	2 scanners
	300.00	2 digital cameras
Sub Total	**1,900.00**	**Sub total**
B) Objective 1- Seed production	-	
Salaries & Fringes	-	
Equipment & Supplies	-	
	5,000.00	Irrigation system for 3.5 hectares at a rate of approximately $1430 per hectare which includes main pipe lines, drippers, filters, and installation labor.
	3,300.00	Inputs for 3.5 has of registered seed at a rate of $1100 per hectare. This calculation includes the standard cost for one hectare as per the latest expense experience in DICTA
Travel	-	
	1,000.00	200 gallons of fuel a $ 5/gallon to be used in DICTA vehicles in the regional offices. On average, 4*4 vehicles yield 30 kilometers per gallon. This estimate provides fuel for each region for weekly visits by technician to the production fields, covering 150 kilometers per week during four months.
	1,500.00	Per diem for 3 trips for 2 supervisors to each of the two regions (6 trips total) at a rate of $125/day
Training	1,000.00	Funds for transportation, 4 training events ($250 each) for hands-on training and field days for at least 30 farmers per session and support technicians at the seed production sites
	-	
Contracted Services	46,057.00	Purchase of 600 qq of quality seed at$76.76 per cwt.

Institution Name: DICTA/SAG- Honduras		Detailed Budget Notes
	-	
Sub Total	**57,857.00**	
C) Objective 2- Seed Handling/Distribution	-	
Salaries & Fringes	-	
Equipment & Supplies	-	
Travel	1,000.00	200 gallons of fuel a $ 5/gallon to be used in DICTA vehicles in the regional offices. On average, 4*4 vehicles yield 30 kilometers per gallon. This estimate provides fuel for each region for weekly visits by technician to the dissemination areas where farmer groups are located, covering 150 kilometers per week during four months.
Training	1,500.00	Funds for transportation and material reproduction for six training events ($250 each) for hands-on training (field days) of at least 30 farmers per session on seed production and conservation techniques
Contracted Services	318.00	A quoted cost of $0.53 per cwt has been obtained for the distribution of seed to the villages in the two target regions.
Sub Total	**2,818.00**	
D) Objective 3- Rhizobium & others	-	
Salaries & Fringes	-	
Equipment & Supplies	-	
Training	-	
Contracted Services	-	
Sub Total	-	
E) Performance Monitoring	-	
Salaries & Fringes	-	
Travel	625.00	This funding will be used to purchase 125 gallons, at $5.0 per gallon of fuel for the monitoring and evaluation team to coordinate the collection of data on project results. This will be sufficient to cover at least 3750 kilometers of in the two regions by the personnel assigned.
Sub Total	**625.00**	
	-	
Total Direct Expenses	63,200.00	
	-	
Indirect Cost	-	
	-	
Grand Total		

Institution Name: DICTA/SAG- Honduras		Detailed Budget Notes
	63,200.00	

NICARAGUA

INTA SOW

Rapid Strategic Investment in Technology Dissemination: Commercialization of Disease Resistant Bean Varieties in Guatemala, Nicaragua, Honduras and Haiti.

(Associate Award to the Dry Grain Pulses CRSP)

SCOPE of WORK

Year 1 (October 1, 2010 – September 30, 2011)

Organization to be Sub-Contracted

Nicaraguan Institute of Agricultural Technology (INTA)
Edificio Maria Castil
Managua, Nicaragua

Project Leader:

Mr. Aurelio Llano
National Bean Program, Head
INTA Carretera Norte Kilometro 14.5 Kilometro
Managua, Nicaragua Managua, Nicaragua
Tel: 25 52 24 22
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Administrative / Financial Officer for Organization:

Maria Isabel Martinez, Director General, INTA
(Authorized Person)
Danilo Montalvan
Director of International Relations, INTA
Email: dmontalvan@inta.gob.ni

Collaborating organizations of the host country:

INTA Regional Office- North Pacific. Director Mr. Homero Gallo
INTA-Regional Office- South Pacific. Director Mr. Edwin Vásquez
INTA Regional Office- Centro Norte. Director Mrs. Mercedes Castillo
INTA Regional Office- South Center. Director Mr. Félix Báez INTA
Regional Office- Las Segovias. Director Mr. Juan A. Blandon

I. Constraint Statement with Justification

The United States Agency for International Development (USAID), Michigan State University (MSU) as the Management Entity for the Dry Grain Pulses Collaborative Research Support Program (CRSP), and the Nicaraguan Institute of Agricultural Technology (INTA) have developed a project to help resource-poor small-holder farmers to plant high quality seed of improved bean seed varieties to increase yields, to produce high quality grain demanded by domestic markets, and to increase their income so as to improve their quality of life. These results will be achieved through a project that makes high quality seed of improved bean varieties accessible to communities of farmers throughout Nicaragua. The project offers a technology package of improved varieties and *Rhizobium* inoculants complemented by a plan for training in value-added integrated production management practices for growing and handling grain.

Under-investment in agriculture, reoccurring food insecurity, high and volatile food costs and global economic and financial crises have dramatically increased the number of the poor and hungry in the world. In poor countries with resource-constrained farmers, limited access to food is exacerbated by its high cost. The recent climate changes recorded in several parts of the world are contributing to increases in the vulnerability of the poor to food insecurity which lead to hunger and devastating consequences for individuals, families, communities and countries.

In Nicaragua, INTA recognizes the challenges faced by resource-poor who lack access to quality seeds due to limited availability and high cost. To help solve this problem, the Bean Technology Dissemination project will seek to enable resource-poor farmers to produce bean quality seed to meet their own planting needs as well as those of their communities thereby improving the farmers‟ quality of life through increased production and productivity. Other goals of the project are to develop knowledge and entrepreneurial skills of farmers in seed production and improve marketing techniques through the establishment of small local and regional farmer organizations. The farmers involved will produce high quality seed within their community utilizing recommended and efficient integrated crop management practices for the production of disease free seed, so as to be competitive in the domestic seed market. This plan will be implemented in Nicaragua over the next three years (2011-2013) with the support of farmers in several communities through USAID funding and technical monitoring by Michigan State University and foundation seed and training from the Escuela Agricola Panamericana (EAP) – Zamorano, Honduras.

II. Project Objectives:

Objective 1. To multiply registered seed utilizing farmers organized in “local seed banks” to produce “quality seed” of improved bean varieties to achieve an annual dissemination goal of reaching at least 2,000 farmers in each of five regions of Nicaragua (as defined by INTA-Regional Programs) per year, equivalent to 10,000 farmers per year, and a three year national goal of 30,000 farmers in Nicaragua through the project. A total of 6000 cwt[6] of improved varieties of quality bean seed will be produced to meet this goal.

Objective 2. To deliver at least 20 pounds of quality bean seed to each beneficiary farmer and to provide training opportunities to farmers who are members of the local seed banks on such topics as seed production management and handling techniques so as to ensure sustainability of the seed system in subsequent years and potential support for the creation of small seed companies.

[6] Cwt = one-hundred weight sac

Objective 3. To develop the technical capacity and provide the infrastructure to produce *Rhizobium* inoculants and to train farmers in their use and application potentially leading to artisanal production or the formation of small regional companies.

III. Planned Activities in this Scope of Work: Year 1 (October 1, 2010 - September 30, 2011)

1. Objective 1. Production of Registered Bean Seed for Nicaragua

a. Selection of improved varieties by region for the production of certified seed

EAP-Zamorano, with support from the Dry Grain Pulses CRSP and the International Center for Tropical Agriculture (CIAT), has developed advanced bean lines and varieties with tolerance to major pests, diseases and abiotic factors and high yield potential. INTA has selected certain of these varieties with excellent adaptation to the agro-ecologies in the country and which have been registered in Nicaragua, to be used in this project.

The varieties selected for each region are based on the recommendations of INTA technicians who have extensive experience working in their respective regions. A preliminary list and the rationale for their selection are detailed as follows.

Region	**Varieties** (varietal names are registered in Spanish)
North Pacific	INTA Rojo and INTA Negro
South Pacific	INTA Rojo, INTA Fuerte Sequía
North Central	INTA Rojo, INTA Matagalpa, INTA Sequía
South Central	INTA Rojo, INTA Fuerte Sequía
Las Segovias	INTA Santa Cruz, INTA Rojo, INTA Matagalpa INTA Santa Cruz

The North Pacific Region (PN) has selected the varieties INTA Rojo and INTA Negro (Aifi Wuriry) due to their resistance to golden mosaic virus.

The South Pacific Region (PS) selected the varieties INTA Rojo, INTA Fuerte Sequia, and a INTA Negro y (SEN 52) line based on their good record of performance in the area.

The North Central Region (CN) has selected INTA Rojo, INTA Matagalpa and INTA Sequia due to their demonstrated field performance and acceptance by farmers in the area.

The South Central Region (CS) has selected INTA Rojo, INTA Fuerte Sequia and INTA Negro because of their good performance in different areas of the humid tropics and acid soils.

For the Region Las Segovias (SG), INTA Rojo, INTA Matagalpa and INTA Norteño have been selected. The first variety has been released and the other two are in the process of being released and are valued for their adaptation to low rainfall, acceptable grain color and resistance to golden mosaic virus.

b. Origin of the foundation, genetic, basic and registered and certified seed

„Foundation‟ seed of these improved bean varieties will be provided by EAP-Zamorano and the „Genetic „seed will be produced by the MIC Project (Manejo Integrado del Cultivo). The Unidad de Semilla of INTA (the Seed Unit) (UNISEM) in Nicaragua will assume responsibility for the production of the „Basic‟ and „Registered‟ seed of the improved varieties.

The Registered seed of the improved bean varieties will be provided to the Bancos Locales de Semilla for further multiplication and distribution to farmers in the various communities as „Certified‟ seed (also known as "apta" or adequate seed). Rural promoters at each community are responsible for overseeing the multiplication of the seed with the support of INTA field extension technicians assigned in each region.

c. Project goals by region and seed requirements

To achieve the dissemination goals for seed of the improved bean varieties, INTA has decided that every beneficiary farmer will receive 20 pounds of seed. It is estimated that 30,000 producers will be reached (10,000 per year) for which 6,000 cwt of seed will be needed in the next three years of the project. The following table summarizes the distribution of seed per region.

Project Goals by Region.

Region	Number beneficiary farmers *	Requirements for Certified seed (cwt)	Area (mz) to be planted by region	Commercial production expected per region (cwt)
PN	2,000	400	500	6,000-10,000
PS	2,000	400	500	6,000-10,000
CN	2,000	400	500	6,000-10,000
CS	2,000	400	500	6,000-10,000
SG	2,000	400	500	6,000-10,000
Per year	10,000	2,000	2,500	30,000-50,000
Total for 3 years	30,000	6,000	7,500	90,000-150,000

- Estimated production per farmer 3-5 cwt of grain/apta seed.
- Area cultivated per farmer from 1,700 to 2,000 square meters.
- Number of participating farmers by region is 2,000 per year.
- Expected yield per manzana (0.7 Ha) 15 cwt

To produce this amount of certified seed, the project will need to purchase at least 495 cwt of "Registered Seed" in order to be able to multiply sufficient seed in all five regions to achieve the distribution requirements of the BTD project.

d. Seed production targets by region and year of the project.

Genetic seed	Basic seed		Registered seed		Certified seed
Zamorano MIC	UNISEM		BLPS Seed companies		Organized Farmers
Area in Mz	Prod. in cwt	Area Mz	Prod. in cwt	Area Mz	Production in cwt
.384	5.76	7.2	108	135	2000

e. Seed production targets for the three-year project.

Genetic seed	Basic seed		Registered seed		Certified seed
Zamorano MIC	UNISEM		BLPS & seed companies		Organized Farmers
Area Mz	Prod. in cwt	Area Mz	Prod. in cwt	Area Mz	Prod. in cwt
.5	21	26	400	500	6000

f. Realistic goals to meet the project objectives per year

Goals	First growing cycle		Postrera/Apante	No. Beneficiary farmers	Project Goals
	Registered seed	BLPS Mz	Certified seed		
National	165	200	2475	12,375	10,000
Regional	33	40	600	3,000	2,000
Local (BLPS)	0.80	1	15	50	

g. Description of "Bancos Locales para la Produccion de Semilla" (BLPS) (Local Banks for Seed Production)

Each BLPS will set aside an area of 1 Mz (7026 m^2) for seed production each year. "***Rural Promoters***", respected leaders of the community and a designated member of each BLSP, will play a leadership role in working with the farmers in their respective communities to oversee the production and handling of the seed as well as capacitation. To achieve the seed multiplication and dissemination goals established by the project, the areas to be planted with registered seed are calculated sufficiently large to cover unexpected crop losses due to severe weather particularly during the first production cycle (primera). The projected seed yield is 15 cwt per manzana planted by each BLPS.

The BTD project will support the training of BLPS farmers on integrated crop management practices to produce disease-free seed and the efficient use of inputs (fertilizer, etc.). This adds value to the dissemination program by providing farmers with technologies and knowledge of management practices for achieving higher yields of quality seed and to enhance profitability. Once the seed is harvested, it will be packaged with the logo of the company producing the seed and the logos of USAID and the BTD program (adapted for the project in Nicaragua).

The Registered seed will be provided by UNISEM to the BLPSs in each region. The cost of the Registered seed, $ 100/cwt, will be covered by the BTD project. The Registered seed produced will comply with the seed quality criteria established by the Seed Law of the Nicaraguan Ministry of Agriculture (MAGFOR). The seed will be planted by the BLSPs with inputs (e.g., fertilizer, pesticides, etc.) also purchased and provided by the BTD project so as to increase the probability that high yields of quality disease free grain is obtained for use as certified/apta bean seed.

The thirty-three cwt of registered seed will be delivered to each region for a total of 40 BLPS growing one manzana (7.026 m $^{2)}$/BLPS. The BLPS are strategically located in each region. The production of these banks are supported with 50 pounds of fertilizer in the first year to be replaced with the application of *Rhizobium* inoculant and chicken manure or bocachi compost as demanded for producers during the second year. The inputs required for seed production also include black plastic to protect the crop during the rainy "primera" growing season.

2. Objective 2 - Delivery and Dissemination of Improved Bean Seed

The „Certified" bean seed produced by the BLPSs will be packed in bags of 20 pounds and will be distributed with support from the MIC Project in Nicaragua. Extension agents will be responsible for this activity. At least 2,000 farmers in each of the five regions in which INTA works will be selected to meet the goal of reaching 10,000 beneficiary resource-poor farmers per year. Each BLPS will serve at least 50 farmers in their community.

As shown in the tables above, the project's impact to the country is expected to result in a net commercial production of 30,000 to 50,000 cwt of grain per year of improved bean varieties for a total of 90,000 to 150,000 cwt by the end of the three-year project. The increased productivity should result in an expansion of planting area, improvement in the nutritional value of diets of many Nicaraguan families, and increased availability of affordable food and seed reserves to reduce the risks of food insecurity due to potential future climate change.

Farmer training will be coordinated by INTA"s Institutional Development Organization (ODI) that will assign functions to the regional coordinators in charge of technology transfer.

The BLPS are organized with a farmers" Board of Directors. The board of each bank is responsible for the organization"s capitalization and management. Each BLPS will receive initial "capital" in the form of Registered seed and production inputs. The seed production obtained is distributed among the members of the BLPS through a payment arrangement between the board and its members.

3. Objective 3- Production and Dissemination of *Rhizobium* and Training

a. Develop at INTA the technical capacity and infrastructure to produce *Rhizobium* inoculant.

Currently, INTA does not possess the technology and capacity to produce *Rhizobium*. This project provides an opportunity to train INTA personnel in the development of laboratory techniques for the culture of Rhizobium and in the production and use of inoculants in legume-based cropping systems to enhance biological nitrogen fixation. Sra. Delfia Mercenaro has been trained at EAP-Zamorano in production techniques and the application of inoculant. The project will train technicians in the handling of different strains, their propagation and commercial culture in peat moss for application in the field. The training will take place at EAP-Zamorano

Honduras with instruction provided by Drs. Consuelo Estevez, University of Puerto Rico, and Juan Carlos Rosas, EAP-Zamorano.

Initially, the Laboratory of Biotechnology at INTA will provide the facilities to house the equipment to be utilized to culture small quantities of *Rhizobium*. The plan is to establish the capacity for commercial inoculant production during the third year of the project. EAP-Zamorano will provide training for project leaders in Nicaragua and these will be responsible for providing technical training to regional leaders. The establishment of a facility for the production of inoculants in cooperation with a private company is also being considered.

b. Produce and train technicians in the use of *Rhizobium* inoculants

Once training to the responsible personnel is received for the management of this activity, groups of technicians and farmers in the regions will be trained to transfer this knowledge in the field.

c. Technical training to farmers in the production of inoculant.

Trained INTA technicians will be responsible for transferring the technology to various agricultural organizations in the country. Farmers‟ organizations may consider the option of inoculant production in the area. The training will be coordinated by the Institutional Development Organization (ODI) in cooperation with the regional coordinators.

d. Feasibility study of using inoculants

Regional field trials with *Rhizobium* inoculants will be conducted to validate and assess the response to this technology in beans within the different environments of the five regions. The extent of field trials will be determined by the availability of resources through the project. Ideally, trials should be set up in the different regions to determine the response in yields. Tests have been suggested with 4 repetitions and treatments consisting of with and without inoculants and with half the recommended N and PK and NPK.

In the second year of the project, INTA‟s goal is to reach 20% of farmers in each region with the inoculant. To achieve this goal, it will likely be necessary to begin developing local capacity for *Rhizobium* or in partnership with other private or public institutions in the regions.

In the third year of the project, this goal will be set to reach at least 30-40% of the bean area covered by the project using the inoculant. The goal will be established in the regions through the development of strategic plans for mass reproduction and distribution of inoculums, entering into agreements with other institutions.

IV. Implementation Timeline:

INTA NICARAGUA	M	A	M	J	J	A	S
A) Project Administration							
Present project to regional teams							
Gather quotes on inputs and plan its distribution	X	X					
Attend international tranining/coordination events	X	X					
Organize/deliver training at national level				X	X	X	
Elaborate subcontract		X					
Technical follow up to project execution		X					
			X	X	X	X	X
B) Objective 1. (Seed production and delivery)							
Train seed producers							
Deliver inputs for production of seed		X	X				
Technical assistance to seed producers			X				
Training on seed pre and post harvest				X	X	X	X
Training on processing and packing					X		
Deliver seed to grain producers						X	X
Technical assistance by specialists							X
C) Objective 2 (Grain production)				X	X	X	X
Training to technicians and rural promoters					X		
Training to promoters and farmers					X		
Delivery of inputs					X		
Organize events for technology dissemination					X		
Provide technical assistance to grain producers					X		
Technica assistance by specialists				X	X	X	X
D) Objective 3 (Rhizobium and training)							
Technical training on Rhizobium production					X		
Purchasing on reactants and other inputs		X					
Establish areas for Rhizobium production		X					
Trainin specialists in every region			X	X	X	X	X
Establish regional trials			X	X			
Validate the use of Rhizobium				X			X
Establish production areas per region				X			X
Diffuse Rhizobium technology with farmers				X			
INTA facilitates access to Rhizobium				X			
Establishment of alliances to produce Rhizobium				X			
E) Monitoring and Evaluation							
Meetings to evaluate advances in the project					X		
Elaboration of quarterly reports		X			X		
Elaboration of annual reports					X		X
Evaluation of the project					X		X
Internal audit of project activities					X		

V. Products and services for the evaluation of technical progress

Expected results/outputs from the first year of the project (through September 2011).

1. Signing of the protocol agreement between Michigan State University and INTA.
2. Acquisition of Registered seed of improved bean varieties by UNISEM and of inputs following the rules of INTA and the Directorate of Seed in the Nicaraguan Ministry of Agriculture (MAGFOR).
3. Production of Certified bean seed in the selected BLPS in the five regions of INTA
4. Technical supervision by the INTA regional technical staff

5. Performance Monitoring data is obtained from the BLPS banks and consolidated by region for the whole country.
6. Distribution of seed in packages of 20 pounds to BLPS members and other farmers in the communities.
7. Protocols are developed to determine the response to the use of inoculants in different regions of the country.
8. Delfia Marcenado is trained in the production and use of inoculants.

VI. Outputs/Deliverables for Assessment of Technical Progress in Year 1:

First Deliverable: Approved Scope of Work and fully sign**e**d Fixed Price contract with MSU
Due Date: 7 Days after receiving partially signed fixed Price contract from MSU
Amount: 40% of Year one (2/1/11-9/30/11) approved budget.

Second Deliverable: Delivery of registered seed to first banks
Due Date: May 30, 2011
Amount: 20% of Year one (2/1/11-9/30/11) approved budget.

Third Deliverable: Acceptable progress report giving evidence of the production of certified/apta seed by BLPS and of completion of training activities on production and Rhizobium technology scheduled up to the end of July, 2011
Due Date: August 8, 2011
Amount: 20% of Year one (2/1/11-9/30/11) approved budget.

Fourth Deliverable: Monitoring and performance data, Year 1 annual report, and Year 2 workplan and budget (10/1/11-9/30/12)
Due Date: By September 15, 2011
Amount: 20% of Year one (2/1/11-9/30/11) and 30% of Year two (10/1/11-9/30/12) approved budgets.

VII. Performance Monitoring Program:

Records will be kept during the whole process from planting to harvest, in each area and bank to be established. Some of the data to be taken constantly are:

Registered Seed

1. Meeting with farmers in all regions to organize BLPS and develop lists of community promoters.
2. Delivery and reception of seed.
3. Monitoring the application of inputs for planting
4. Production monitoring of banks
5. Monitoring the application of insecticides, fungicides and herbicides
6. Seed yield monitoring in each of the banks
7. Training records to technicians and farmers

Seed for Planting by Farmers

1. Distribution of 20-pound bags of seed to 2,000 farmers by region
2. Delivery of fertilizer (50 pounds fertilizer)
3. Monitoring and follow-up grain production
4. Harvest and crop yield determination per plot
5. Consolidation of information by areas, regions and national consolidated.
6. Production and financial report after each crop cycle.

The formats to gather monitoring data were developed by Dr. Mywish Maredia, Michigan State University, and will be made available to INTA for use in collection Performance Monitoring data. The reports submitted shall be tailored to this assessment plan, and additional data will be gathered at national level to suit national conditions to facilitate internal reporting and evaluation by region.

VIII. Leveraging Resources:

Strategic alliances will be established in different regions of the country with various NGOs to provide inputs for commercial seed production (certified or apta seed) by the BLPSs. Since this production is not supported by the project to purchase inputs such as fertilizers, etc., contacts will be established with other organizations to support complementary seed production activities. INTA can support these plans by paying the production of the crop or in cash at the end of the cycle.

INTA will participate in the follow up of the activities listed below.

- Distribution of budgeted funds
- Organization of producers around the BLPS
- Organization of policies for community banks
- Development of workplans for each bank, zone and region
- Delivery/reception of seed and inputs
- Definition of the monitoring plan, 5 technicians / Region
- Development of the plan, goals and scope of the project

- Definition of a training plan: Number of events, topics, dates, cost of each event and number of participants
- Registered seed harvesting and record keeping by location
- Development of reports at the local, regional and national level
- Planning of seed distribution. Bank report (50 beneficiaries‟ bank). 2,000 recipients by region
- Allocation of inputs (fertilizer 50lbs/20 lbs. seed)
- Reporting on results of trials with inoculants
- Follow-up to production activities with farmers (postrera / apante)
- Performance evaluation of artisanal production for local and regional levels per parcel and per region
- Assessment results for zonal, regional and national levels
- Evaluation of the first year: conclusions, recommendations, and elaboration of the proposed plan for 2012

IX. Gender equity

Ensuring gender equity in the selection of technologies for dissemination as well as for ensuring that women have access to the technologies being disseminated so as to improve their livelihoods will be a priority of this project. Since women‟s involvement in bean production varies significantly among different bean production areas in the target countries, the gender equity activities will need to be contextualized for each area where the bean technology package is disseminated. The distinct dimensions of the roles of rural men and women relative to bean production, household food security, and handling and marketing of grain will be considered for each of the target areas and the appropriate dissemination strategies developed in accord with these roles.

To ensure that these gender equity issues are adequately addressed, the project will consult with a gender specialist from the Escuela Agricola Panamericana- Zamorano when designing and implementing technology dissemination strategies so as to ensure that women will have equal access as male farmers to the improved bean technology package. In addition, the differential effects of interventions on the welfare of both women and men will be documented for monitoring and assessment of project performance.

In particular, consideration will be given selecting small red and black bean types that are not only highly productive (thus maximizing the return on the investment of a women‟s time to produce food), but also varietal traits that will not demand additional inputs for management of the crop. As example, disease resistance in improved varieties reduces the need for farmers (which include women) to purchase and apply costly and potentially harmful (to human health) fungicides, bacteriocides and insecticides, to control vectors of plant viruses. The use of *Rhizobium* inoculants should also be considered as benefitting women as it reduces the need for the purchase of synthetic and costly nitrogen fertilizers.

Each of the five INTA regions must make sure that at least 20% of participants in the seed banks are women that are part of organized groups for seed production. Women will have the same responsibilities and rights with men in joining banks and also in the access to the benefits.

X. Budget

INTA Nicaragua	Year one
	10/1/10-9/30/11
INTA Nicaragua	
A) Project Administration	
Operational expenses (A)	$3,000.00
Vehicule (1) (A)	$25,000.00
Equipment (2 Laptop, 1 printer, 1 multimedia project, 1 mobile internet connection) (+ Acc) (A)	$7,000.00
Fuel and Per diem (A)	$5,457.00
Sub Total	**$40,457.00**
B) Objective 1. (Seed production and delivery)	
Bean seed	$16,000.00
Inputs required for the production of registered seed	$53,500.00
Seed packing and transportation	$10,000.00
Operational expenses (B)	$5,000.00
Fuel and per diem (B)	$15,914.00
Sub Total	**$100,414.00**
C) Objective 2 (Grain production)	
Operational expenses	$9,000.00
Complete fertilizer (50Lb per 1/4 Mz)	$4,000.00
Promotional material (brochures, radio, meetings)	$2,667.00
Sub Total	**$15,667.00**
D) Objective 3 (Rhizobium y Cap)	
Reactants and materials	$2,000.00
Field demonstrations for inoculants	$2,000.00
INTA personnel training	$4,000.00
Training to INTA beneficiaries	$4,000.00
Sub Total	**$12,000.00**
E) Monitoring and Evaluation	
Tranportation and per diem	$7,000.00
Sub Total	**$7,000.00**
Total Direct Expenses	**$175,538.00**
Indirect Cost	
Grand Total	**$175,538.00**

BUDGET NOTES

PROJECT AREA	AMOUNT	DETAIL
A) Project Administration		

PROJECT AREA	AMOUNT	DETAIL
Operational expenses (A)	$3,000.00	This operational expenses are calculated in $85 per month for each of the five regional offices of INTA ($85*7 months*5 offices) and will be necessary to purchase office stationary, cover phone and internet use.
Vehicle (1) (A)	$25,000.00	A four wheel drive vehicle is required to track and monitor the efforts in different regions of the country. The roads in Nicaragua are in poor condition, frequently unpaved. During the rainy periods, a four-wheel drive vehicle is necessary to visit the BLPS. Vehicles at INTA have currently surpassed their useful life and are in a deteriorated stage. Based on recent experience, a Toyota or Nissan 4*4 vehicle delivered to INTA with plates and title processed according to the Nicaragua law will run for this amount.
Equipment (2 Laptop, 1 printer, 1 multimedia project, 1 mobile internet connection) (5Gps) (A)	$7,000.00	Prices consulted locally are approximately described as follows: 2 laptops Dell with increased memory to handle pictures and video for monitoring and evaluation purposes ($1500/each); 1 medium duty printer ($600), 1 medium duty multimedia projector ($1400), 1 USB-mobile internet connector ($80); $60/month for 7 months for mobile internet connection ($60*7=$420); 5 rugged gps units for monitoring and evaluation-one per INTA region- at $300/each = $1500
Fuel and Per diem (A)	$5,457.00	At least 30 field days per month are calculated in total for coordination purposes under this objective. This is equivalent to six field days per each INTA regional office at $25/day to cover gasoline and per diem. Hotel expenses are seldom charged since trips are within distances that permit technicians to return to their points of origin. Gas prices are currently $4.65/gallon in Nicaragua. One motorcycle can run 80km per gallon while 4*4 trucks yield 30-32Km maximum. $25/day is good for at least two gallons of fuel per day plus food and incidental expenses in the rural area. Therefore this is a conservative calculation based on recent INTA current expenses.
Sub Total	**$40,457.00**	
B) Objective 1. (Seed production and delivery)		
Bean seed	$16,000.00	Each of the 40 banks will receive 80 pounds of registered seed, enough to produce one manzana. The cost in US$ per pound of registered seed is $1. This is equal to $80/bank. Since each region will have 40 banks, the cost per region is $3200. In five regions this cost arrives to $1600.

PROJECT AREA	AMOUNT	DETAIL
Inputs required for the production of registered seed	$53,500.00	Please refer to the table in the word document where inputs are outlined.
Seed packing (materials and labor)	$10,000.00	The sack to pack 20-pound bags is calculated in $0.40 while the two-sided label at $0.25. Labor is calculated in $0.35. This is equivalent to $1.0/20-pound bag as every region is expected to reach 2000 beneficiaries making a total of 10,000 during year 1 of the project
Operational expenses (B)	$5,000.00	Bringing registered seed to each of the 200 banks needs the coordination of services and communication and meetings with the heads of the banks, whether they meet in Managua, secondary cities or close to the rural areas. To partially cover those expenses, the project will make $1000 available to each INTA Regional Office to bring about this activity.
Fuel and per diem (B)	$15,914.00	INTA vehicles and local services in and around the towns where the 200 banks are located will be needed to deliver the seed, packing materials, supplies and afford coordination efforts by INTA technicians. At least three days of such activities are budgeted per bank at the rate of $25/day for fuel and per diem and incidental expenses. This is equivalent to $80/bank for this objective. Expected additional expenses will be covered by INTA.
Sub Total	**$100,414.00**	
C) Objective 2 (Grain production)		
Operational expenses	$9,000.00	The project will assign $1800 per INTA regional office (total of $9000) to cover the operational expenses of coordinating the distribution of fertilizers for each of the banks. This is equivalent to $45/bank, although in some cases, several banks will be visited the same day, but in other cases, distances and the bad state of roads will make this activity more expensive. INTA considers this is a reasonable cost based on actual operational expenses in the region.
Complete fertilizer (50Lb per 1/4 Mz)	$4,000.00	One hundred sacs of 100 pounds each will be necessary for this purchase. Current prices for each hundred-weight sac (cwt) is $40.
Promotional material (brochures, radio, meetings)	$2,667.00	10,000 brochures and 10,000 mini posters informing farmers about the varieties, production practices and use of rhizobium inoculum will be printed. High-volume printed, based on previous experience, is priced at $0.13/8*11in flyers (a letter-sized doc.)
Sub Total		
D) Objective 3 (Rhizobium y Cap)		

PROJECT AREA	AMOUNT	DETAIL
Reactants and materials	$2,000.00	Laboratory materials to carry out this activity are calculated in $2000 for the full year for the production of Rhizobium inoculum.
Field demonstrations for inoculants	$2,000.00	The project will contribute this amount to the development of field trials for inoculum.
INTA personnel training	$4,000.00	The project will cover the travel and per diem of at least 2 trainees in Zamorano, Honduras for one week. This cost includes airfare, hotel and per diem in Zamorano (2,000 per person).
Training to INTA beneficiaries	$4,000.00	At least 10 field days (two per region) will be held by INTA to train beneficiaries on different bean production technologies. It is expected that at least 25 farmers per event will attend. The funding will be used at the rate of $400/event or $16/person to cover the cost of venue, photocopy materials and provide a lunch and soft drinks. The training will include topics such as: • Use of inoculants • Agronomic handling of the crop such as planting distances, fertilization and minimum tillage. • Plant health: identification, control and management of diseases • Pests: identification, management and control • Harvest: drying, storing in metallic silos • Project-fund management • Meetings to analyze problems and solutions • Post harvest management • Production value addition and seed marketing
Sub Total	**$12,000.00**	
E) Monitoring and Evaluation		
Transportation and per diem	$7,000.00	Two qualified technicians will be assigned to monitoring and evaluation for a total of 30 days per INTA Regional office at a rate of $26 for hotel and per diem, and $15.0/day for fuel. This is equal to 150 days at $46/day = $7000.
Sub Total	**$7,000.00**	
Total Direct Expenses	$175,538.00	
Indirect Cost	$0.00	
Grand Total	$175,538.00	

Inputs for the BLPS during 2011

Registered seed: 165 cwt for the planting of 200 Mz

Inputs	Unit	Requirement, cwt/Mz	Unit cost, C$	Cost/Mz C$	Cost in US$/Mz	Cost per region US$	Total 2011 Cost, US$
18-46-0	cwt	2	603	1206	54.82	2,193	10,965
Tare 10-11-7	Kg	1	90	90	4.09	164	818
Metaldehyde	Kg	10	171	171	7.77	311	1,555
Glyphosate	Lt	2	68	136	10.2	247	1,236
Flex	Lt	0.8	434	347	15.77	831	3,156
Fusilade	Lt	0.8	369	292	13.42	537	2,684
Amistar	Kg	100cc	468	468	21.27	851	4,255
Tacremento	Kg	1	125	125	5.7	228	1,140
Store	Lt	100cc/2 aplic	114	228	10,36	415	2,073
Tacre K NIR	Kg	4	58	58	2.7	830.80	4154
Engeo	Lt	100cc	161	161	7.32	293	1,464
Black plastic	Kg	1 roll	2,200	2,200	100	4,000	20,000
Total							**53,500**