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Cacao for Peace Update: Firing on All Cylinders

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Report Highlights:
Cacao for Peace (CfP) is a collaborative initiative between the U.S. Agency for International Development (USAID) and the U.S. Department of Agriculture's Foreign Agricultural Service (USDA-FAS) that began in January, 2016. CfP aims to strengthen Colombia's key agricultural institutions for cacao in the public and private sectors. To help achieve this objective, the program targets four main areas for capacity building activities: 1) Agricultural Extension; 2) Education; 3) Research; and 4) Technical Assistance. This report highlights the main achievements in these areas during the first half of the life of the project (January 2016 – July 2018).

General Information:

The Cacao for Peace Initiative is a $5 million, five-year (2016-2021) capacity building project. By strengthening Colombia's key institutions for cacao, the project could help make Colombia a world leader in cacao. Achieving this goal would provide the multi-billion dollar U.S. chocolate industry new and reliable suppliers of cacao outside of West Africa and create a productive alternative for Colombian farmers to substitute from the cultivation of illicit crops. The project would also provide a boost to the rural economy of Colombia, benefit the environment, and help the peace process.
As the lead implementer of Cacao for Peace, USDA-FAS possesses a unique ability to identify and deploy experts from USDA agencies, U.S. land grant universities (LGUs) such as Penn State University, Purdue University, and the University of Florida and from other institutions for the implementation of capacity building activities. In fact, USDA-FAS has been able to leverage around $1.5 million in resources from our various partners to complement the Cacao for Peace activities.

1) Agricultural Extension

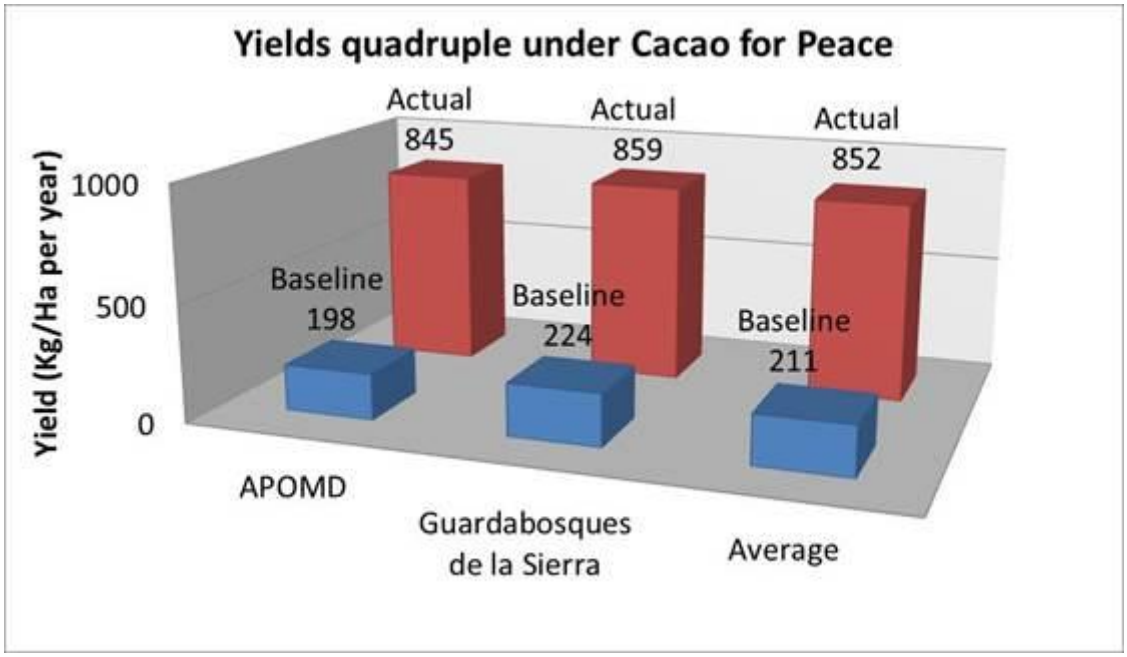
Even though overall area has increased in Colombia over the last 40 years, yields have remained extremely low. One of the major obstacles for Colombia to improve its cacao sector is a lack of a robust extension service in the country to train cacao farmers on the latest techniques to improve yields. Existing cacao extension and technical training activities in Colombia are erratically provided by the Colombian governmental, industry and stakeholders.

We are developing a coordinated, comprehensive and sustainable extension model for cacao farmers in partnership with the Federation of Cacao Growers (Fedecacao), the United Nations Office on Drugs and Crime (UNODC), and Peace Corps. We have started a pilot project in the Sierra Nevada de Santa Marta in the Caribbean region of Colombia and plan on expanding our extension model to other cacao growing regions of the country.

UNODC and Fedecacao have been leading extension training, with frequent assistance from Peace Corps Volunteers (PCVs). The ongoing training has been well-received by CfP communities. From March 2017 to March 2018, 438 farmers have been trained in pruning, fertilization, disease control, genetics and breeding, and good agricultural practices. Three CfP cacao boot camps have been conducted at Fedecacao's San Vicente de Chucurí training center for over 100 cacao farm leaders, PCVs and agricultural extensionists. A total of 45 farms have adopted improved technologies and management practices with CfP assistance and serve as demonstration or replica farms for conducting trainings and showing farmers how cacao agricultural improvements are possible. These activities are strengthening Fedecacao's agricultural extension capacity and allowing it to be permanently present in a region that has requested its technical assistance for over 15 years.

We have had tremendous success with our pilot project in improving yields. With the start of the project, staff began to survey farmers in the three CfP communities to develop a baseline for yields,

which was 211 kg/ha per year. We wanted to double yields to 422 kg/ha per year within the five years of the project. Our impressive results, however, surpassed the program's original yield target. As of July 2018, the actual yield is 852 kg/ha per year, which is an increase of 304% for the cacao baseline farms involved in the project (see graph below) :



2) Education

The Colombian cacao industry lacks the technical expertise to improve the sector. Moreover, few Colombians have the opportunity to obtain post-graduate degrees in cacao research or participate in in-depth study on the cacao value-chain. CfP has improved opportunities for Colombians to obtain post-graduate degrees at LGUs in agricultural science, specializing in cacao, and to participate in USDA scholarship programs.

Post-graduate Education

On a cost sharing basis, CfP successfully partnered with Fulbright-Colombia and Colfuturo (a Colombian non-profit organization that promotes post-graduate education) to offer a total of eight Colombian cacao research scholarships. These scholarships allow Colombian students to attend U.S. universities (Penn State University and Purdue University) for post graduate degrees in academic subjects that support CfP objectives. The students were selected not only because they fulfilled Fulbright and Colfuturo requirements, but also because of their previous work experience in the Colombian cacao sector and their commitment to the sector. The students' research will seek solutions to the challenges in the Colombian cacao sector as they work with their advisors.

Fulbright-CfP-Penn State University Fellows

The Fulbright-CfP Penn State students recently completed their first year of studies. Their research projects focus on strengthening the Colombian cacao sector (cadmium remediation, evaluation of cacao extension projects, genetics of cacao pathogens, and technology innovation in cacao farms). Penn State University waived tuition for the scholars and Penn State cacao experts are guiding the students' research projects. Next year the Colombian scholars will graduate with masters degrees and return to Colombia to work in the cacao sector.

In 2018 CfP, Colfuturo, and Purdue University partnered to create scholarships for four additional Colombian cacao researchers to obtain advanced degrees in agricultural and biological engineering, agricultural sciences education and communication, and horticulture and landscape. Currently the candidates are settling in at Purdue University and developing their research projects.

Cacao for Peace established an advisory committee comprised of CfP team members to oversee Fulbright and Colfuturo scholar research and ensure it is in line with CfP objectives.

Cochran and Borlaug Fellowships

Cochran Fellows at Penn State University

CfP is sponsoring education at the intermediate scientific and technical levels through USDA-FAS's own Borlaug and Cochran Fellowship programs. Thus far five Colombian professionals have participated in a Cochran program while three Colombian scientists have worked with U.S. scientist under the Borlaug Fellowship program. The Colombian professionals have benefited from these programs as they continue to work as researchers and technical assistants for institutions related to the cacao sector.

3) Research

USDA's Agricultural Research Service (ARS) and Agrosavia Agreement

Colombia has not reached its potential for cacao research. To strengthen the cacao research capabilities of Colombia, CfP has promoted, supported and funded an agreement with USDA's Agricultural Research Service and Agrosavia (formerly known as CORPOICA). ARS is one of the leading research institutions on cacao in the world.

The four main activities included in this agreement are:

- Activity 1: Assess genetic diversity of Colombia's cacao germplasm bank collection (curated by Agrosavia). The assessment is being done using single-nucleotide polymorphism (SNP) fingerprinting to identify and eliminate off-type and duplicate entries, assess diversity gaps in the collection, and to survey the genetic diversity of on-farm and wild cacao populations.

- Activity 2: Develop breeding activities that will generate new cacao varieties with improved traits, such as high productivity, disease resistance, and limited cadmium uptake.

- Activity 3: Assess the common diseases of cacao, and determine the biodiversity of these disease-causing organisms to better understand their underlying biology and improve disease control measures.

- Activity 4: Research and transfer best agronomic practices to improve the management and production of cacao, and address the priority issue of cadmium.

With activity 1, CfP worked with Agrosavia scientists to collect samples from Colombia's cacao germ plasm bank in Palmira, Valle del Cauca. The collected samples will be shipped to ARS in Beltsville, Maryland for genetic analysis and classification. For activity 2, Agrosavia began refurbishing a greenhouse to store 39 high yielding/disease resistant cacao clones being sent to them by ARS. Per Colombian regulations, the clones must be quarantined prior to field testing. With activity 4, ARS and the University of Florida trained an Agrosavia scientist to identify cadmium in soils and in plant material.

USDA (ARS, FAS) – Agrosavia Coordination meeting

Research Symposium

In collaboration with the American Chamber of Commerce in Barranquilla and Penn State University, CfP held a research symposium in Barranquilla, Colombia in May, 2017. Over 100 participants attended the symposium from the public and private sectors. The main output of the symposium was the identification and prioritization of the following cacao research areas for Colombia: 1) soil (including Cadmium mitigation) and water; 2) genetic crop improvement; 3) technology transfer and adoption, and 4) market research.

CfP's Cacao Research Symposium (May 2017)

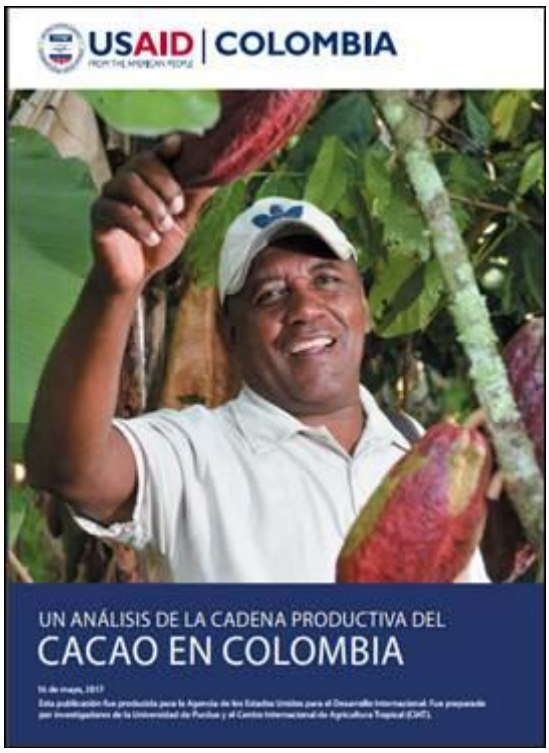
Cadmium Gene Editing Project

Currently CfP is preparing a bidding process for the selection of an international institution with research experience in Colombia for tackling the cadmium contamination in cacao issue through gene editing. The project will be supported with initial funds from CfP in association with other national and international partners.

4) Technical Assistance – Institutional Capacity Building, Tools and Resources

The Colombian cacao industry has limited access to integrated technical assistance and CfP has developed a comprehensive technical assistance portfolio to address this need. USDA possesses a wealth of agricultural expertise housed within USDA agencies and also access to LGUs that allow Cacao for Peace to develop pilot projects for strengthening Colombian institutions. To date CfP has produced the following:

- A study of the Colombian Cacao Sector: USDA contracted Purdue University and the International Center for Tropical Agriculture (CIAT) to conduct a study of the Colombian cacao supply chain. The study identified cacao supply chain bottlenecks, weaknesses, strengths and opportunities, and offers strategic approaches to position Colombia's cacao sector in domestic and international markets. The results of the study are published in the report "Analysis of the Cacao Supply Chain in Colombia."



Analysis of the Cacao Productive Chain in Colombia,
Prepared by Purdue University and CIAT (April 2017)

- A Geographical Information System (GIS) for soil and cacao genetics for optimizing cacao production in the Sierra Nevada de Santa Marta region: This is a pilot project that we hope to replicate in other cacao growing regions in Colombia. The GIS will include mapping for cadmium, which is a big constraint for Colombian cacao exports. CIAT is leading the project in partnership with USDA's Natural Resources Conservation Service (NRCS), Penn State University, and the Colombian institutions IGAC (The Colombian Geographical Institute) and UPRA (Colombian Agricultural Planning Unit).

  The GIS project will provide a detailed map for cacao showing the most suitable varieties and areas for production. The project should provide a catalyst for investment in the cacao sector and will improve the capabilities of IGAC and UPRA

- A study by the University of Florida (UF) for certifying Colombian cacao as child labor free: In the first phase of the study, UF will identify the child labor free certification best suited for Colombian cacao associations supported by CfP. In the second phase, the UF will support associations to meet the criterion for the selected certification. So far UF has conducted the following activities: 1) identified cacao certification alternatives that are available for Colombian cacao associations that include labor standards that are appropriate for the reduction/prevention of child labor; 2) reviewed all the certification requirements for these certifications and summarized their core labor standards; 3) reviewed Colombian child labor laws and compared them to ILO and US-Department of Labor laws; 4) contacted third party certifiers, as well as interviewed stakeholders in the cacao sector in Colombia, in order to assess the feasibility of third party certification of labor standards; 5) traveled to Colombia and interviewed a large

number of directors of institutions and projects and inquired about their view and experience with child labor issues in the cacao sector, as well as their perspective on optimal ways to prevent it; and 6) determined the need to revise the project scope of work based on feedback by the U.S. Labor Department Attaché to Colombia.

- IR4 Project: CfP is working with USDA/FAS's Office of Capacity Building and Development and Rutgers University to identify pesticides for cacao diseases to establish maximum residue levels (MRLs) for these pesticides. Identifying the appropriate pesticides to combat the three main cacao diseases (black pod, frosty pod and witches broom) will increase cacao productivity in Colombia. This project will also be carried out in partnership with the Colombian Agricultural Institute (ICA) to strengthen its technical and regulatory capacity.

- Peace Corps: CfP is partnering with Peace Corps-Colombia to provide cacao producer associations with targeted technical assistance. PCVs are providing assistance to cacao association members in the following areas: production cost and return analysis; cacao processing equipment operation; strategic planning; and marketing and financial management. CfP has provided funding through grants to PCVs, who are supported by technical experts from UNODC and Fedecacao.